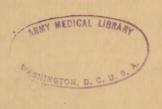
REPORT

THE ARMY AIR FORCES BOARD
ORLANDO, FLORIDA

TESTS CONDUCTED BY

# AAF TACTICAL CENTER

ORLANDO, FLORIDA



SUBJECT

DISSEMINATION OF D.D.T. FROM STANDARD BRITISH EQUIPMENT

PROJECT No 3735BH725

DATE

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26 April 1945

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DISSEMINATION OF D.D.T. FROM STA'NDARD BRITISH -EQUIPMENT

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THE ARMY AIR FORCES BOARD Orlando, Florida

JRVD/TJC/gb-F

26 April 1945

ARMY AIR FORCES BOARD PROJECT NO. 3735BH725

DISSEMINATION OF DDT FROM STANDARD BRITISH EQUIPMENT

#### I. OBJECT:

To determine the practicability of disseminating insecticide DDT from aircraft with the standard British 500 lb. S.C.I. (Smoke Curtain Installation) tank.

#### II. FACTUAL DATA:

a. The equipment tested under this project was the standard British 500 lb. S.C.I. (Smoke Curtain Installation) bomb bay spray tank. The capacity of this tank is 25 Imperial or approximately 30 U. S. Gallons. The tank body has an overall length of 66 inches and is 13 inches in diameter. The discharge pipe, which is located below the tank but forms a part thereof, is  $2\frac{1}{2}$  inches in diameter at the extreme outlet orifice and 3 inches in diameter at the point of junction with the tank. The air inlet pipe on top of the tank is 1 inch in diameter at the end and 2" in diameter at the point of junction with the tank.

The contents of the tank are discharged by breaking the glass closure plates installed in the air inlet and outlet pipes by detenators fired by electric circuit connected to a switch in the cockpit. The chemical filling flows from the tank by dynamic air pressure and gravity.

The empty tank weighs approximately 125 pounds. Filled with DDT solution in #2 Diesel oil it weighs approximately 350 pounds.

- b. Standard U. S. M-10 airplane smoke tanks were also used in the tests for purpose of comparison and evaluation with relation to results in disseminating DDT with the M-10 A.P.S.T. in AAF Board Project No. F-3486, entitled "Test to Determine the Most Practical Means of Disseminating Insecticide DDT from Aircraft."
- c. A-20G and A-26 aircraft were used in the tests. The British 500 lb. S.C.I. tank was modified for carrying on the wing racks of both types aircraft for the purpose of these tests.
- d. Insecticide DDT. Pure DDT is a white crystalline substance, correctly named 2,2 bis (p chlorophenyl) 1.1.1. trichlorethane.



- e. Dye.- Anthraquinone blue, AB base dye and DuPont oil red No. 5076 were used on this project.
- f. Solvent for DDT. No. 2 diesel fuel oil was used as the solvent for DDT in 5% solution. On all tests with 10% solution of DDT, 20% W/v of Barrett's Heavy Solvent was used as an auxiliary solvent (Test No. 7 Third Event excepted).
- g. For the purpose of these tests, and in the absence of appropriate British aircraft, for which the British 500 lb. S.C.I. was designed, subject tank was modified for carrying on the wing racks of A-20G and A-26 aircraft.
- h. The tests under this project were conducted by AAF Tactical Center, Orlando, Florida, with the assistance of the Bureau of Entomology and Plant Quarantine of the U. S. Department of Agriculture, Orlando, Florida, and the Chemical Warfare Service, Dugway Proving Ground Mobile Unit, Bushnell, Florida. Tests under Events I and II were performed on Lake Hart near Orlando, Florida. All other tests were performed at the Chemical Warfare Demonstration Range, AFTAC, Orlando, Florida.

III. CONCLUSIONS: It is concluded that;

- a. The British 500 lb. S.C.I. (Smoke Curtain Installation) tank is a satisfactory unit for disseminating insecticide DDT from aircraft.
- b. The capacity of subject tank is 25 Imperial or 30 U. S. gallons.
- c. The time of discharge, rate of flow and approximate length of spray pattern of a single British 500 lb. S.C.I. tank, filled with 25 Imperial or 30 U. S. gallons, of DDT solution in No. 2 Fuel Oil, discharged at an I.A.S. of 240 m.p.h. are as follows:

British 500 lb. S. C. I.

Time of Discharge -

16 seconds

Rate of flow -

1.875 gallons/second

Approximate Length of Pattern -

1880 yards

d. The use of 10% solutions of DDT in subject tank gave far better results than five percent solutions. Five percent solutions of DDT are, however, more practical for use in the field in that no auxiliary solvents are required. Ten percent solutions of DDT require the use of auxiliary solvents which are, at the present time, not available in most theatres.

- e. Based on the above tests, the optimum altitude of spraying with subject tank filled with 5% solutions of DDT in crosswinds of moderate velocities (2 to 11 m.p.h.) appears to be approximately 150 feet. With 10% solutions of DDT satisfactory results were obtained by spraying from 50 to 300 feet in crosswinds of moderate velocity.
- f. The exact effective length of the pattern produced by a single British 500 lb. S.C.I. is not known on a basis of observed insect kill. Based on time of discharge and speed of aircraft, it is estimated to be approximately 1880 yards.
- g. The average effective width of the pattern produced under optimum conditions by the British 500 lb. S.C.I. was approximately 200 yards. Based on this pattern width and the estimated length of 1880 yards, a single British 500 lb. S.C.I. should, at normal operating speeds of approximately 200 m.p.h., cover approximately 78 acres and effect a distribution of about 1.5 quarts per acre.

#### IV. RECOMMENDATIONS: It is recommended that:

- a. For dissemination of 5% solutions of DDT with the British S.C.I., the contents be released at an approximate altitude of 150 feet in crosswinds of moderate velocities (2 to 12 m.p.h.) at normal operating speeds.
- b. The distance between lines of flight for continuous treatment of an area by successive flights be not more than 200 yards and preferably about 175 yards.

#### V. DISCUSSION:

a. <u>Nethods of Testing.- (1) First Event.- This test was</u> conducted by spraying parallel patterns on the surface of a lake from both the British S.C.I. and the U.S. MIO tanks for the purpose of obtaining a comparison of the patterns of spray from the two tanks. Spraying was done from an altitude of 25 feet at an I.A.S. of 240 m.p.h.

Although this procedure was repeated five times, no photographs were obtained that could be considered satisfactory for evaluation. For this reason, the pattern length was approximated from the time of discharge of the tank. The estimated length of the patterns of the tanks are as follows:

British S.C.I.

1800 yards

U. S. 110

600 yards

NOTE: At the time the above tests were being conducted, the mosquito population was inadequate to permit actual spray runs to determine

effective pattern length and facilities were not available to permit use of entomological sample stations over the entire length of the spray pattern.

- (2) Second Event. This test was conducted by spraying parallel patterns on the surface of a lake from both the British S.C.I. and U. S. 110 tanks. Spraying was done at an altitude of 200 feet at an I.A.S. of 240 m.p.h. No photographs were obtained that were satisfactory for the purpose of evaluation.
- (3) Third Event. This test was conducted using mosquito larvae and flies. A range was laid out with parallel lines of stations, the lines being 200 yards apart. All stations on each line were fifty yards apart. At each station on line A was placed a container of mosquito larvae to determine percentage of kill; a petrie dish to obtain a deposit for subsequent laboratory testing for data on fly kill; a microscopic slide coated with magnesium oxide to obtain data on droplet size; and a round white enameled plate to obtain data on density of spray. In addition to the above, at each station on line B was placed a cage containing live flies. (See Incl. 5 and Photographs Nos. 5, 6 and 7, Incl. 6).

Leteorological equipment was set up to determine temperature, wind velocity, wind direction and relative humidity. (See Photograph 5, Incl. 6). The flight path in all cases was crosswind, approximately 90 to the two lines of stations. The DDT spray was carried by the wind and deposited in the area covered by the stations. The altitudes flown were 300 feet, 150 feet, and 50 feet.

These tests were conducted to determine the following:

- (a) Effective pattern width.
- (b) Percentage of fly kill.
- (c) Percentage of mosquito larvae kill.
- (d) Particle (droplet) size.
- (e) Quantity of DDT per square meter.

Test No. 1.- This test was conducted at an altitude of three hundred (300) feet. The S.C.I. contained 5% DDT in %2 fuel oil. The most effective portion of the pattern varied from two hundred (200) yards in width at line A to two hundred fifty (250) yards at line B.

(a) Percentage of fly kill.

Line A - Stations on line A did not contain flies in cages. On this line, petrie dishes were contaminated by DDT spray,

and flies were placed in these dishes in the laboratory. 100% of flies exposed to dishes from stations #1 to 11 were killed in eight (8) to twenty five (25) minutes after exposure. (Station #3 excepted) (See Incl. 8).

Line B - Stations on line B contained both live flies in cages and petrie dishes. 100% of flies exposed to petrie dishes from stations #1 to 13 were killed in eleven (11) to sixty six (66) minutes after exposure. The percentage of flies in cages that were killed varied from 17% to 100%. (See Incl. 8).

#### (b) Percentage of mosquito larvae kill.

Line A - The percentage of mosquito larvae kill was highest at stations #1 to 7. The kill varied from 25% to 95% at these stations. (See Incl. 8).

Line B - The percentage of mosquito larvae kill was best at stations #1 to 11. The kill varied from 30% to 100% at these stations. (See Incl. 8).

# (c) Particle (Droplet) size.

Line A - Particle size in microns varied from two hundred eighty-two (282) microns at stations #3 to six hundred fifty (650) microns at station #9. The size of practically all particles recorded varied from two hundred (200) to eight hundred (800) microns. (See Incl. 8).

Line B - Data on particle size is not available for this line of stations.

# (d) Milligrams of DDT per square meter.

Line A - The number of milligrams of DDT per square neter varied from 1.1 mg to 4.2 mg. This was from stations #1 to 11 inclusive, with the heaviest deposit of DDT at stations #3. (See Incl.9).

Line B - The number of milligrams of DDT per square meter varied from 3.3 mg to 9.3 mg. This was from stations #1 to 11 inclusive, with the heaviest deposit at station #5. (See Incl. 9).

Test No. 2.- This test was conducted at an altitude of three hundred (300) feet. S.C.I. contained 5% DDT in No. 2 fuel oil. The most effective portion of the pattern was less than fifty (50) yards wide at Line A and fifty (50) yards wide at Line B.

# (a) Percentage of fly kill.

Line A - Stations on line A did not contain flies in cages. On this line, petrie dishes were contaminated by DDT spray,

and flies were placed in these dishes in the laboratory. 100% of flies exposed to dishes from stations No. 1 to 3 were killed in 26 to 97 minutes. (See Incl. 8).

Line B - Stations on Line B contained both live flies in cages and petrie dishes. 100% of flies exposed to petrie dishes were not killed in less than 240 minutes, except at station No. 5 where 90% were killed in 122 minutes. The percentage of flies in cages that were killed was less than 45% at all stations (See Incl. 8).

#### (b) Percentage of mosquito larvae kill.

Line A - The percentage of mosquito larvae kill was high at station No. 7 only. (90%). (See Incl. 8).

Line B - The percentage of mosquito larvae kill was high at stations No. 1 (100%) and No. 3 (90%). At all other stations, the kill was less than 66%. (See Incl. 8).

# (c) Particle (Droplet) size.

Line A - Particle size in microns varied from 242 microns at station No. 1 to 132 microns at station No. 9. The size of all particles recorded was below 400 microns. (See Incl. 8).

Line B - Particle size in microns varied from 220 microns to 110 microns. The size of all particles recorded was below 400 microns. (See Incl. 8).

# (d) Milligrams of DDT per square meter.

Line A - The number of milligrams of DDT per square meter varied from 0.2 to 11.1 mg. This was from stations No. 1 to 15 inclusive, with the heaviest deposit at station No. 1. (See Incl. 9).

Line B - The number of milligrams of DDT per square meter varied from 0.2 to 1.0 mg. This was from stations No. 1 to 15 inclusive, with the heaviest deposit at station #3. (See Incl. 9).

Test No. 3.- This test was conducted at an altitude of 300 feet. The S.C.I. contained 10% DDT in No. 2 fuel oil with 20% Barrett's Heavy Solvent added as an auxiliary solvent. The most effective portion of the pattern was between 150 and 250 yards wide at Line A and between 200 and 300 yards wide at Line B.

# (a) Percentage of Fly Kill.

Line A - Stations on Line A did not contain flies in cages. On this line, petrie dishes were contaminated by DDT spray, and flies were placed in these dishes in the laboratory. 100% of flies exposed to dishes from stations No. 5 to 17 were killed in 26 to 123 minutes. (See Incl. 8).

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Line B - Stations on Line B contained both live flies in cages and petrie dishes. 100% of flies exposed to dishes from stations #3 to 17 were killed in 12 to 50 minutes. The percentage of flies in cages that were killed varied from 93% to 98% at stations No. 5 to 17 with 85% kill at station No. 9. (See Incl. 8).

#### (b) Percentage of mosquito larvae kill.

Line A - The percentage of mosquito larvae kill was highest at stations #1 to 7. 100% kill recorded at stations 1 to 5 and 90% kill at No. 7. (See Incl. 8).

Line B - The percentage of mosquito larvae kill was highest at stations No. 5 to 11. 90% to 100% kill recorded with 75% kill at No. 9. (See Incl. 8).

# (c) Particle (Droplet) size.

Line A - Particle size in microns varied from 154 microns at station No. 11 to 418 microns at station No. 13. All particles recorded were below 419 microns. (See Incl. 8).

Line B - Particle size in microns varied from 418 microns at station No. 11 to 528 microns at station No. 15. All particles recorded were below 800 microns. (See Incl. 8).

# (d) Milligrams of DDT Per Square Meter.

Line A - The number of milligrams of DDT per square meter varied from 1.9 to 82.8 mg. This was from station No. 1 to 17 inclusive, with the heaviest deposit at station No. 17. (See Incl. 9).

Line B - The number of milligrams of DDT per square meter varied from 0.7 mg to 9.9 mg. This was from station No. 1 to 17 inclusive with the heaviest deposit at station No. 11. (See Incl. 9).

Test No. 4.- This test was conducted at an altitude of 300 feet. The S.C.I. contained 10% DDT in #2 fuel oil with 20% Barrett's heavy solvent added as an auxiliary solvent. The most effective portion of the pattern was 350 yards wide at line A and between 150 and 300 yards wide at line B.

# (a) Percentage of fly kill.

Line A - Stations on line A did not contain flies in cages. On this line, petrie dishes were contaminated by DDT spray, and flies were placed in these dishes in the laboratory. 100% of flies exposed to dishes from stations 1 to 17 were killed in 10 to 25 minutes. (See Incl. 8).

Line B - Stations on line B contained both live flies in cases and petrie dishes. 100% of flies exposed to dishes from stations No. 1 to 17 were killed in 12 to 31 minutes. The percentage of flies in cases that were killed was 100% from stations No. 5 to 17 inclusive. (See Incl. 8).

#### (b) Percentage of mosquito larvae kill.

Line A - The percentage of mosquito larvae kill was 100% at stations No. 5 to 17 inclusive with 90% kill at No. 3. (See Incl. 8).

Line B - The percentage of mosquito larvae kill was 100% from station No. 11 to 17 inclusive with 85% kill at No. 5 and 7. (See Incl. 8).

#### (c) Particle (Droplet) size.

Line A - Particle size in microns varied from 242 microns at station No. 15 to 330 microns at station No. 7 to 13. 100% of all droplets recorded were below 800 microns. (See Incl. 8).

Line B - Particle size in microns varied from 132 microns at stations No. 17 to 220 microns at station No. 7 and 15. 100% of all particles recorded were below 800 microns. (See Incl. 8).

# (d) Milligrams of DDT per Square Meter.

Line A - The number of milligrams of DDT per square meter varied from 1.4 mg to 56.9 mg. This was from station No. 1 to 17 inclusive, with the heaviest deposit at station No. 15. (See Incl. 9).

Line B - The number of milligrams of DDT per square meter varied from 4.4 mg to 38.1 mg. This was from station No. 1 to 17 inclusive, with the heaviest deposit at station No. 15. (See Incl. 9).

Test No. 5.— This test was conducted at an altitude of one hundred fifty (150) feet. S.C.I. contained 5% DDT in No. 2 fuel oil. The most effective portion of the pattern was two hundred fifty (250) yards wide on both lines A and B.

# (a) Percentage of fly kill.

Line A - Stations on line A did not contain flies in cages. On this line, petrie dishes were contaminated by DDT spray, and flies were placed in these dishes in the laboratory. 100% of flies exposed to dishes from stations #3 to 11 were killed in fifteen (15) to fifty-one (51) minutes, with 100% kill at station #1 in one hundred forty-two (142) minutes. (See Incl. 8).

Line B - Stations on line B contained both live. flies in cages and petrie dishes. 100% of flies exposed to petrie dishes from stations #3 to 9 were killed in seventeen (17) to twenty-five (25) minutes with kill in excess of 73% in two hundred forty (240) minutes at station #1. The percentages of flies in cages that were killed varied from 97% to 100% from stations #1 to 11 inclusive. (See Incl. 8).

#### (b) Percentage of mosquito larvae kill.

Line A - The percentage of mosquito larvae kill was highest at stations #1, 5, 9, and 11. The kill at these stations varied from 60% to 100%. At station #3 the kill was only 15% and at stations #7 the kill was only 25%. (See Incl. 8).

Line B - The percentage of mosquito larvae kill was highest at stations #1 to 11. The kill varied from 70% to 100% at these stations. There was a 55% kill at station #13. (See Incl. 8).

#### (c) Particle (Droplet) size.

Line A - Particle size in microns varied from two hurdred sixty (260) microns at station #3 to four hundred twelve (412) microns at station #9. (See Incl. 8). The size of practically all particles recorded was below six hundred (600) microns. (See Incl. 8).

Line B - Particle size in microns varied from one hundred fifty-two (152) microns at station #1 to eight hundred sixty-eight (868) at station #7. The size of practically all particles recorded varied from two hundred (200) to eight hundred (800) microns. (See Incl. 8).

# (d) Milligrams of DDT per Square Meter.

Line A - The number of milligrams of DDT per square meter varied from 0.3 mg to 8.3 mg. This was from stations #1 to 11 inclusive, with the heaviest deposit at station #9. (See Incl. 9).

Line B - The number of milligrams of DDT per square meter varied from 4.7 mg. to 14.2 mg. This was from stations #1 to 13 inclusive, with the heaviest deposit at station #11. (See Incl. 9).

Test No. 6. This test was conducted at an altitude of 150 feet. The S.C.I. contained 5% DDT in No. 2 fuel oil. The most effective portion of the pattern was between 200 and 250 yards wide at Line A and 300 yards wide at Line B for larvae but considerably less for flies in cages.

# (a) Percentage of fly kill.

Line A - Stations on line A did not contain flies

in cages. On this line, petrie dishes were contaminated by DDT spray, and flies were placed in these dishes in the laboratory. 1003 of flies exposed to dishes from stations No. 1 to 11 were killed in 14 to 47 minutes. (See Incl. 8).

Line B - Stations on line B contained both live flies in cages and petrie dishes. 100% of flies exposed to dishes from stations No. 1 to 11 were killed in 14 to 47 minutes. (See Incl.8).

Line 8 - Stations on line B contained both live flies in cages and petrie dishes. 100% of flies exposed to dishes from stations No. 1 to 11 were killed in 12 to 85 minutes, station No. 9 excepted. 100% of flies in cages were killed at station No. 1 only. (See Incl. 8).

(b) Percentage of mosquito larvae kill.

Line A - The percentage of mosquito larvae kill was 100% at stations No. 1 to 5 inclusive, and 90% kill at stations No. 9, 11, and 17.

Line B - The percentage of mosquito larvae kill was 100% at stations No. 1 to 13 inclusive. (See Incl. 8).

(c) Particle (Droplet) size.

Line A - Particle size in microns varied from 132 microns at station No. 15 to 440 microns at station No. 1. All particles recorded were below 800 microns and most were below 600 microns. (See Incl. 8).

Line B - Particle size in microns varied from 110 microns at station No. 7 to 286 microns at station No. 3. All particles recorded were below 400 microns. (See Incl. 8).

(d) Killigrams of DDT per square meter.

Line A - The number of milligrams of DDT per square meter varied from 1.0 mg to 36.9 mg. This was from station No. 1 to 17 inclusive, with the heaviest deposit at station No. 3. (See Incl. 9).

Line B - The number of milligrams of DDT per square meter varied from 0.3 mg to 43.1 mg. This was from station No. 1 to 17 inclusive, with the heaviest deposit at station No. 1 (See Incl. 9).

Test No. 7.- This test was conducted at an altitude of one hundred fifty (150) feet. The S.C.I. contained 10% DDT in No. 2 fuel oil. The most effective portion of the pattern was two hundred (200) yards wide at both lines A and B (See Incl. 8).

(a) Percentage of fly kill.

Line A - Stations on line A did not contain flies in cages. On this line, petrie dishes were contaminated by DDT spray, and flies were placed in these dishes in the laboratory. 100% of flies exposed to dishes from stations #1 to 11 were killed in nine (9) to one hundred thirteen (113) minutes. (See Incl. 8).

Line B - Stations on line B contained both live flies in cages and petrie dishes. 100% of flies exposed to dishes from stations #1 to 9 were killed in eight (8) to seventy-nine (79) minutes. The percentage of flies in cages that were killed was 100% at stations #1 to 7 inclusive, with 11% kill at station #9. (See Incl.8).

(b) Percentage of mosquito larvae kill.

Line A - The percentage of mosquito larvae kill was highest at stations #1 to 9. The kill at these stations varied from 75% to 100%. (See Incl. 8).

Line B - The percentage of mosquito larvae kill was highest at stations #1 to 9. The kill at these stations varied from 95% to 100% with 35% kill at station #9. (See Incl. 8).

(c) Particle (Droplet) size.

Line A - Particle size in microns varied from one hundred fifty-two microns at station #5 to four hundred thirty-four (434) microns at station #1. All particles recorded were below four hundred fifty (450) microns. (See Incl. 8).

Line B - Particle size in microns varied from one hundred fifty-two (152) microns at station #7 to six hundred fifty (650) microns at station #1. All particles recorded were below six hundred fifty-one (651) microns. (See Incl. 8).

(d) Willigrams of DDT per square meter.

Line A - The number of milligrams of DDT per square meter varied from 1.2 mg to 97 mg. This was from stations #1 to 17 inclusive, with the heaviest deposit at station #1. (See Incl. 9).

Line B - The number of milligrams of DDT per square meter varied from 0.3 mg to 50.9 mg. This was from stations #1 to 17 inclusive, with the heaviest deposit at station #3. (See Incl. 9).

Test No. 8.- This test was conducted at an altitude of 150 feet. The S.C.I. contained 10% DDT in #2 fuel oil with 20% Barrett's Heavy Solvent added as an auxiliary solvent. The wind direction shifted 90° at the time of the spray run and consequently the DDT spray was carried back along the length of the flight path and very little was deposited on the stations. (See Incl. 8).

Test No. 9.— This test was conducted at an altitude of 150 feet. The S.C.I. contained 10% DDT in #2 fuel oil with 20% Barrett's Heavy Solvent, added as an auxiliary solvent. The most effective portion of the pattern was at stations No. 11, 13, and 17 on line A, and negligible on line B. On this run, the forward detonator did not fire and the S.C.I. tank trickled DDT solution for a considerable length of time as compared to the normal time of discharge. (See Incl. 8).

Test No. 10. This test was conducted at an altitude of 50 feet. The S.C.I. contained 5% DDT in No. 2 diesel fuel oil. The most effective portion of the pattern was not more than 50 yards wide at line A and the same on line B.

#### (a) Percentage of fly kill.

Line A - 100% of flies exposed to petrie dishes from station No. 3 were killed in 102 minutes. (See Incl. 8).

Line B - 100% of flies exposed to petrie dishes were killed in 55 minutes at station No. 1 and 53 minutes at No. 3. The percentage of fliers in cages that were killed was 100% at station No. 1. (See Incl. 8).

(b) Percentage of mosquito larvae kill.

Line A - The percentage of mosquito larvae kill was 95% at station No. 3. (See Incl. 8).

Line B - The percentage of mosquito larvae kill was 95% at station No. 1. (See Incl. 8).

- (c) Particle (Droplet) size. Not enough particles were recorded to give any indication of particle size on this test. (See Incl. 8).
  - (d) Milligrams of DDT per square meter.

Line A - The number of milligrams of DDT per square meter was very low and varied from 0.2 mg to 1.0 mg. (See Incl. 9).

Line B - The number of milligrams of DDT per square meter was very low and varied from 0.2 mg to 1.1 mg. (See Incl. 9).

Test No. 11. This test was conducted at an altitude of 50 feet. The S.C.I. contained 5% DDT in no. 2 diesel fuel oil. The most effective portion of the pattern was 50 yards wide on line A and the same on line B.

#### (a) Percentage of fly kill.

Line A - 100% of flies exposed to petrie dishes were killed in 9 minutes at station No. 1 and 20 minutes at station No. 3. (See Incl. 8).

Line B - 100% of flies exposed to petrie dishes were killed in 28 minutes at station No. 1 and 110 minutes at station No. 3. The percentage of flies in cages that were killed was below 90% at all stations. (See Incl. 8).

#### (b) Percentage of mosquito larvae kill.

Line A - The percentage of mosquito larvae kill was 95% at station No. 1 and 5. (See Incl. 8).

Line B - The percentage of mosquito larvae kill was 100% at stations No. 1 and 3 with 90% kill at station No. 7. (See Incl. 8).

# (c) Particle (Droplet) size.

Line A - Particle size in microns varied from 198 microns at station No. 1 to 66 microns at station No. 9. The size of all particles recorded was below 400 microns. (See Incl. 8).

Line B - Particle size in microns varied from 132 microns at station No. 1 to 88 microns at station No. 3. The size of all particles recorded was below 200 microns. (See Incl. 8).

# (d) Milligrams of DDT per square meter.

Line A - The number of milligrams of DDT per square meter varied from 0.3 mg to 21.3 mg. This was from station No. 1 to 15 inclusive, with the heaviest deposit at station No. 1. (See Incl. 9).

Line B - The number of milligrams of DDT per square meter varied from 0.3 mg to 3.5 mg. This was from station No. 1 to 17 inclusive, with the heaviest deposit at station No. 1 (See Incl. 9).

Test No. 12. This test was conducted at an altitude of 50 feet. The S.C.I. contained 10% DDT in No. 2 diesel fuel oil with 20% Barrett's Neavy Solvent added as an auxiliary solvent. The most effective portion of the pattern was 100 yards wide at both line A and 100 yards wide on line B.

# (a) Percentage of fly kill.

Line A - 100% of flies exposed to petrie dishes were killed in 19 to 96 minutes. This was from stations no. 1 to 17

inclusive. (See Incl. 8).

Line B - 100% of flies exposed to petrie dishes were killed in 22 to 108 minutes at stations No. 11 to 17 inclusive. 100% of flies in cages were killed at stations No. 13 to 17 inclusive. (See Incl. 8).

#### (b) Percentage of mosquito larvae kill.

Line A - The percentage of mosquito larvae kill was 100% at stations No. 1, 5, and 13, and 15, with 95% kill at stations No. 3 and 17. (See Incl. 8).

Line B - The percentage of mosquito larvae kill was 100% at stations No. 15 and 17 with 90% kill at station No.,13. (See Incl. 8).

#### (c) Particle (Droplet) size.

Line A - Particle size in microns varied from 154 microns at station No. 3 to 264 microns at station No. 13. The size of all particles recorded was below 400 microns. (See Incl. 8).

Line B - Particle size in microns varied from 88 microns at station No. 9 to 352 microns at station No. 17. The size of all particles recorded was below 600 microns. (See Incl. 8).

# (d) Milligrams of DDT per square meter.

Line A - The number of milligrams of DDT per square meter varied from 0.2 mg to 3.5 mg. This was from stations No. 1 to 17 inclusive, with the heaviest deposit at station No. 1 and 15. (See Incl. 9).

Line B - The number of milligrams of DDT per square meter varied from 1.2 mg to 37.8 mg. This was from station No. 1 to 17 inclusive, with the heaviest deposit at station No. 17. (See Incl. 9).

Test No. 13.- This test was conducted at an altitude of 50 feet. The S.C.I. contained 10% DDT in No. 2 diesel fuel oil with 20% Barrett's Heavy Solvent added as an auxiliary solvent. The most effective portion of the pattern was 200 yards wide at line A and 250 to 300 yards wide on line B.

# (a) Percentage of fly kill.

Line A - 100% of flies exposed to petri dishes were killed in 11 to 64 minutes. This was from station No. 7 to 17 inclusive. (See Incl. 8).

Line B - 100% of flies exposed to petri dishes were killed in 10 to 100 minutes. This was from station No. 1 to 17

RESTRICTED

inclusive. (See Incl. 8). 100% of flies in cages were killed from station No. 7 to 17. (See Incl. 8).

(b) Percentage of mosquito larvae kill.

Line A - The percentage of mosquito larvae kill was 100% at station No. 11, 15, and 17 with 95% kill at station No. 9 and 13. (See Incl. 8).

Line B - The percentage of mosquito larvae kill was 100% at stations No. 7 to 17 excepting 11 where the kill was 70%. The kill was 90% at station No. 5. (See Incl. 8).

(c) Particle (Droplet) size.

Line A - Particle size in microns varied from 154 microns at station No. 5 to 374 microns at station No. 11. The size of all particles recorded was below 600 microns. (See Incl. 8).

Line B - Particle size in microns varied from 132 microns at station No. 3 and 13, to 352 microns at station No. 17. The size of all particles recorded was below 600 microns. (See Incl. 8).

(d) Milligrams of DDT per square meter.

Line A - The number of milligrams of DDT per square meter varied from 0.7 mg to 76.0 mg. This was from station No. 1 to 17 (No. 3 excepted), with the greatest deposit at station No. 17. (See Incl. 9).

Line B - The number of milligrams of DDT per square meter varied from 2.3 mg to 61.4 mg. This was from station No. 1 to 17 inclusive, with the greatest deposit at station No. 17. (See Incl. 9).

FOR THE ARMY AIR FORCES BOARD:

A. C. STRICKIAND
Brigadier General, U. S. Army
President

OFFICIAL:

GUSTAV A. NEUBERG Lt. Colonel, AGD Recorder

DIRECTIVE FOR PROJECT

# HEADQUARTERS ARMY AIR FORCES WASHINGTON 25. D. C.

AFRBD-lr 6 July 1944

SUBJECT: Conductance of D.D.T. Tests for the British Air Commission

TO: President, Army Air Forces Board Orlando, Florida

- 1. The British Air Commission has requested this Herdquarters to authorize the AAF Board to conduct limited tests to determine, in conjunction with project (M-5)212, the most practical means of disseminating insecticides D.D.T. from aircraft using standard British equipment.
- 2. The British Air Commission is in a position to furnish without delay six 500 lb. S.C.I.'s, type S/G and a quantity of fifty each inlet and outlet discs and detonators. Also, if required, they may be able to furnish a Vengeance airplane (A-35B) fitted with British Universal bomb racks to take the 500 lb. S.C.I.'s.
- 3. It is requested that the AAF Board conduct such tests as necessary to determine the practicability of employing British standard aircraft and equipment as means of disseminating insecticide D.D.T. for area insect control. Those tests which require depot modification of equipment will not be undertaken.
- 4. Coordinating details may be handled between the R.A.F. liaison officer, AFTAC and W/C R. Hazlewood, British Air Commission, Washington 6, D.C. (Telephone Decator 9000, extension 63).

By command of General ARNOLD:

/s/ William F. McKee
WILLIAM F. McKEE
Colonel, Air Corps
Deputy Asst. Chief of Air Staff
Operations, Commitments &
Requirements

TEST PROGRAM

TEST PROGRAM FOR ARMY AIR FORCES BOARD PROJECT F3735

#### 1. GENERAL

- a. British S.C.I. (Smoke Curtain Installation) tank is a twenty-five (25) imperial gallon bomb bay tank. For the purpose of this project, the S.C.I. is to be modified for carrying on wing racks. It weighs approximately five hundred (500) pounds filled, armed, and mounted. The outstanding differences between this tank and the MIO APST are: The air inlet and the outlet are smaller than that of the MIO APST. In addition the S.C.I. normally has only one carrier lug and has to be modified to be carried on A-20 type aircraft.
  - b. This is a <u>SECOND PRIORITY</u> experimental test.
  - c. The following materials are required for this test:

495 gallons - #2 diesel oil in 55 gallon drums. 25 pounds - Anthraquinone blue AB base (dye).

8 each - Pots, smoke, HC, Ml.

24 each - No. 4, electric blasting caps, 4 to 6 foot leads.

24 each - Air inlet closure plates for M10 smoke tanks.

48 each - Air inlet gaskets for M10 smoke tanks.

24 each - Discharge closure plates for M10 smoke tanks.

48 each - Discharge gaskets for M10 smoke tanks.

4 each - M10 smoke tanks.

The above requirements are necessary in order to cover all necessary tests.

- d. This test has been requested by 1st Ind. Army Air Forces Board, Orlando, Florida, dated 12 July 1944, to Commanding General, Army Air Forces Tactical Center, Orlando, Florida.
- e. The project officer is lst Lt. Sterling R. Forney, 90lst AAF Base Unit (Tactical Wing), Assistant Chief, Chemical Warfare Branch.
- 2. OBJECT: To determine practicability of employing British standard equipment as a means of disseminating Insecticide D. D. T. for area insect control.

# 3. METHOD OF CONDUCTING TEST:

#### a. Phases

- (1) Preliminary
  - (a) Test area A lake of sufficient size and shape

- to permit laying, observing, and photographing spray patterns required. A minimum area 1,000 yards long by 300 yards wide should be allowed for each pattern.
- (b) Filling, handling, and hanging of spray tanks will be performed by Chemical Warfare Service troops. Appropriate personnel will also be needed for weather reporting, photographing, observation, and other ground work at target.
- (c) The following oil will be used in tests: No. 2 diesel oil comparable to that used in tests on AAF Board Project (M-5) 212, See F-3486.
- (d) British S.C.I.'s to be furnished by British Air Commission. Tanks will be mounted and flight tested on A-20G aircraft by AFTAC.
- (e) General Airplane requirements:
  One (1) A-20G airplane for laying spray.
  One (1) photographic and observation airplane
  equipped for taking photographs to scale. NOTE:
  Services of same airplanes and crews will be
  furnished for all tests if possible.

# (2) Main

- (a) Event 1 Comparative test of distribution patterns of S.C.I. and M10 smoke tanks.
  - 1. Two (2) crosswind spray patterns each with #2 diesel oil from one (1) British S.C.I. released at minimum altitude. (25 feet over water)
  - 2. Two (2) crosswind spray patterns each with #2 diesel oil from one (1) M10 tank released from minimum altitude. (25 feet over water)
  - 2. Missions 1 and 2 to be run under same wind conditions and photographed at the same time.

# (b) Event 2.

- 1. Two crosswind spray patterns each with #2 diesel oil, from 200 feet altitude over water, from one (1) British S.C.I.
- 2. Two crosswind spray patterns each with #2 diesel oil, from one (1) MlO tank released

from 200 feet altitude over water.

- Missions 1 and 2 to be run under same wind conditions and photographed at same time.
- (c) Event 3 Entomological and Physical Determinations.
  - 1. Two (2) single tank releases of 5% DDT solutions over the target area at an altitude of 50 feet, operational speed cross wind, with wind velocity of between 3 and 10 m.p.h.
  - 2. Two (2) single tank releases of 10% DDT solution over the target area at an altitude of 50 feet, operational speed cross wind, with wind velocity of between 3 and 10 m.p.h.
  - 2. Two (2) single tank releases of 5% DDT solution over the target area at an altitude of 150 feet, operational speed cross wind, with wind velocity of between 3 and 10 m.p.h.
  - 4. Two (2) single tank releases of 10% DDT solution over the target area at an altitude of 150 feet, operational speed cross wind, with wind velocity of between 3 and 10 m.p.h.
  - 5. Two (2) single tank releases of 5% DDT solution over the target area at an altitude of 300 feet, operational speed cross wind, with wind velocity of between 3 and 10 m.p.h.
  - 6. Two (2) single tank releases of 10% DDT solution over the target area at an altitude of 300 feet, operational speed cross wind, with wind velocity of between 3 and 10 m.p.h.

b. From the above tests, the following observations will be made and the following compiled:

- (1) Percentage of fly kill at each station.
- (2) Percentage of mosquito larvae kill at each station.
- (3) Percentage of particle (droplets) size at each station.
- (4) Density (quantity of DDT per square meter at each station).
- (5) stive pattern width at each altitude and with each type of DDT solution,

(6) Time and rate of discharge for each tank release. From the time and rate of discharge, an estimate of the pattern length will be given.

#### NOTES:

- 1. Comparative releases of M10 and S.C.I.'s to be made at same time and under same conditions. Two comparative releases under each condition are provided to allow average.
- 2. Each pattern must be photographed immediately (30 to 60 seconds) after application to prevent distortion of pattern by water movement. Photographs must be made accurately to scale.
- 3. Meteorological data must be carefully measured and recorded on each mission. Wind should be 4 to 10 M.P.H.
- 4. Facility of filling, handling, arming, and general functioning of the British S.C.I.'s as compared to the MIO airplane smoke tank will be carefully observed in all operations and on all missions. The nature and cause of all difficulties and malfunctions will be carefully recorded.
- 5. A conference of participating personnel as designated by the Project Officer will be held prior to the beginning of the tests, in order to thoroughly acquaint all personnel with the objective, methods to be followed, and their respective responsibilities.
- 6. Participating personnel will be carefully briefed before each mission.
- 7. Close liaison will be maintained throughout the test between the Project Officer, AFTAC; the Project Officer, AAF Board; the Project Officer, 90lst AAF Base Unit (Tactical Wing); the British Liaison Officer, and other participating personnel. At the conclusion of the test a conference of all the above mentioned personnel will be held for the purpose of compiling, analyzing, and evaluating the data obtained from the test.
- 8. Any or all of the aforementioned missions may be repeated if necessary, and at the discretion of the Project Officer.

#### RECORDS:

- 1. Forms and records to be used will be prescribed and issued by the Project Officer to pertinent personnel.
- 2. Other data on each mission will include wind speed, wind direction, temperature, humidity, time of day, and general weather characteristics.
  - 3. Air planes and Air Operations. Type airplane used, altitude,

air speed, and direction of flight in degrees with respect to direction of wind (all missions will be flown as near as possible to 90° with the wind direction or crosswind).

- 4. Chemical Tanks. Type and size, amount and type filling, number position on airplane, failures, general performance, time of discharge, weight and amount of residue left in tanks after mission, character of spray at release and end points.
- 5. Filling, Handling, and Arming Operations. Procedure, facility and time required for filling, handling and arming the test tank compared to the MIO AFST will be carefully noted and recorded. Any difficulties in these operations will be recorded.
- 6. Target. Description, condition at time of mission, extent, size, and shape of pattern.
- 7. Chemical Agent. Description, weight and amount per tank, specific gravity.

#### EVALUATION OF DATA AND REPORTS:

All data collected, records, tabulations, analyses, computations, methods, evaluations, etc., will be placed in the report form prescribed by the AAF Board and will be submitted in triplicate to the AAF Board upon completion of the tests.

DATA ON MODIFICATION OF BRITISH 500 LB. S.C.I.

OFFICE OF THE ARMAMENT OFFICER
S JUADRON L BOMB (L) 904th AAF BASE UNIT (FIGHTER) VHL/E/1
KISSIMMEE ARMY AIR FIELD
KISSIMMEE FLORIDA

12 January 1945

SUBJECT: Modification of British Chemical Tank - 500# for Adaption to U.S. Army Air Corps Wing Racks.

- : Project Officer, Squadron L, 904th AAF Base Unit, Kissimmee Army Air Field, Kissimmee, Florida.
  - A. Following are the modifications necessary to adapt the British Chemical Tank 500# to be carried externally on U.S. Army Air Corps wing racks:
    - 1. Hemove rubber insullating covers from tanks.
    - 2. Have carrying bands and carrying lugs manufactured to fit tank body.
    - 3. Install front band against forward side of loading attachment, and rear band 14 inches (center to center) to rear of front band.
    - 4. Have sway bolts manufactured 5/8" x 5" and threaded approximately 3 inches.
    - 5. The loading attachment on tank will not allow the carrying lugs to be as close to tank as desired, leaving a distance of approximately  $2\frac{1}{2}$ " to 3" between top of tank and bottom of rack, thus longer sway bolts have to be used.

/s/ V.H. La May, V.H. LA MAY, 2nd Lt., Air Corps, Armament Officer.

CERTIFIED A TRUE COPY

/s/ Sterling R. Forney,
STERLING R. FORNEY,
Capt, CWS,
Asst Chief, Chem War Br.

DATA ON FIRST AND SECOND EVENT TESTS

# FIRST EVENT - FIRST MISSION

No result obtained.	Result on first take gave pattern length, but width could not be determined. Taken 13 seconds after spraying.	Photographs good on first take, approximately 23 seconds after spraying.
73	7.1	69
60°50	630	66.80
700	700	700
7 MPH	5 WPH	5 MPH
SCI	MALO	SCI
1	ત્ય	8
	SCI 4 MPH 70° 60.2° 73	MLO 5 MPH 70° 60,2° 73

# FIRST EVENT - SECOND MISSION

	Results on Photographs	**No result obtained.	** No result obtained.	**No result obtained.	
	Humidity	68	88	86	-
	remperature	520	52.50	52.50	dan ilin duning
	Wind Direction	PH 360° 52°	360°	360°	
	Wind Velocity	ндм 9	наи 7	5 MPH	ch chi chi chi chi chi chi chi chi chi c
DATE - 9 December 1944.	Tank Used	SCI	MO	SCI	OTM
DATE - 9	Run No.	1	8	m	菜

\* MIO tank did not release \*\* Patterns did not show on photographs.

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FIRST EVENT - THIRD MISSION

	Results on Photographs	No result obtained on first take, Very faint pattern on second take. Outline not clear. Second take approx, 4 min. after spraying.	Negligable result be- lieved due to turbul- ence over water.
	Humidity	94	745
	Temperature.	520	516
	ocity   Wind Direction Temperature   Humidity	3300	3100
744.	Wind Velocity	5 MPH	6.5 MPH
DATE - 14 December 19	Tank Used	SCI	OTN
DATE - L4	Run No.	Н	ત

SECOND EVENT - FIRST LISSION

-	-		
	Hesults on Photographs	H 280° 52° 46 Very poor results ob- tained on photographs.  No definite pattern when photographed 34 sec. after spraying.	No definite pattern obtained on photographs.
	Humidity	94	45
	Temperature	520	520
	Wind Direction	2800	3000
	nd Vel	8 MPH	8 MPH
JATE - 14 December 1944.	Tank Used	SCI	OTA
DATE - 1	Run No.	П	2

FIRST LVENT - FOURTH MISSION

-		
Temperature   Humidity   Results on Photographs	Result of photo pat- tern was fair. Faint outline obtained giv- ing width, but length could not be deter- mined. Photographed 42 seconds after spray- ing.	Result of photo pat- tern was fair. Faint outline obtained giv- ing width, but only approximate length. Photographed 36 sec- onds after spraying.
Humidity	70	70
	550	550
ocity Wind Direction	00	00
Ind Vel	3 LPH	3 MPH
Run No.   Tank Used   W.	SCI	000
Run No.	н	- 30 -

DIAGRAM OF RANGE LAYOUT FOR THIRD EVENT TESTS

RANGE LAYOUT - THIRD EVENT

INCL. 5

Diagram of Entomological Range Layout.

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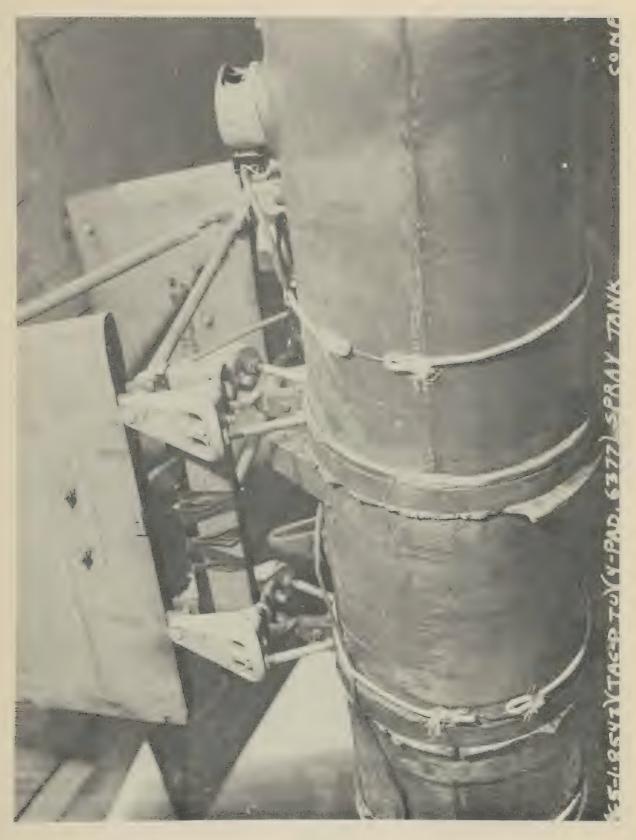
RESTRICTED

INCLOSURE NO. 6

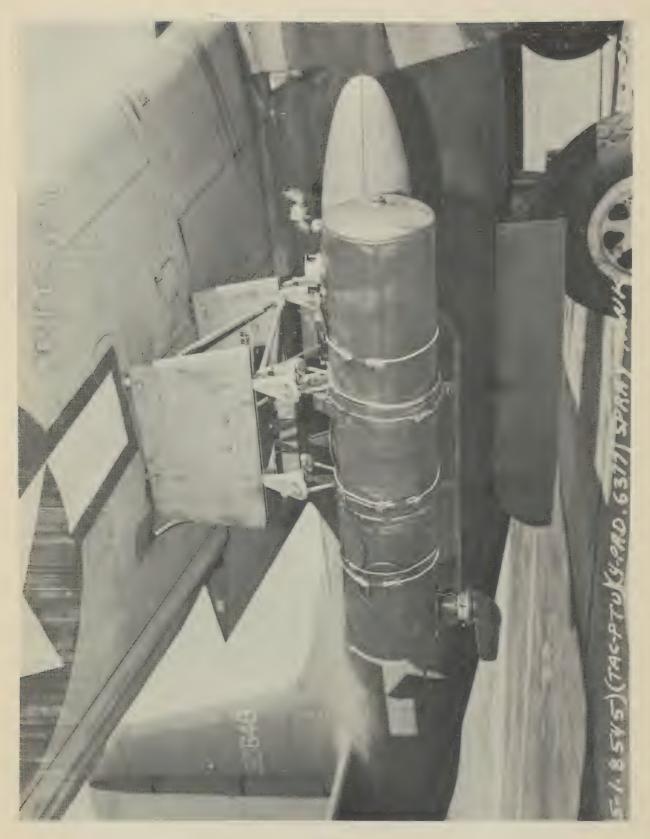
Photographs

Photos Nos. 1, 2, 3 and 4

British 500-lb. S.C.I. and U.S. M-10 APST Installed on A-20-G Wing Rack.

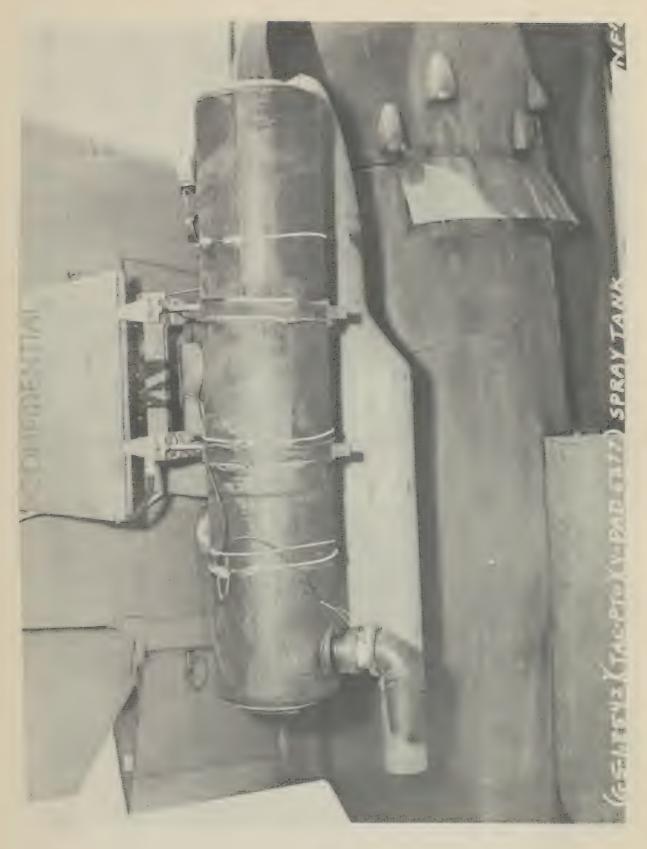


- 35 -RESTRICTED

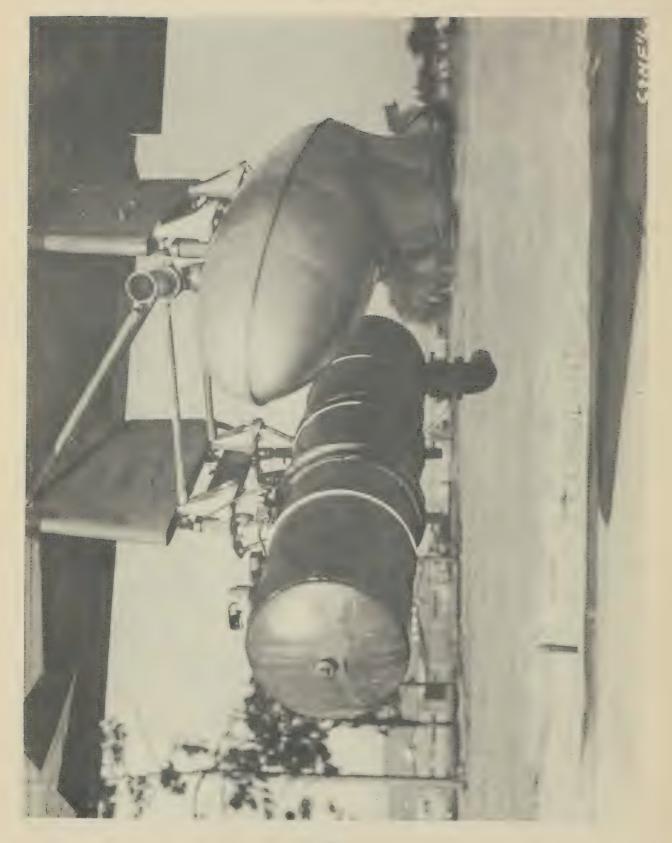


- 36 -

RESTRICTED

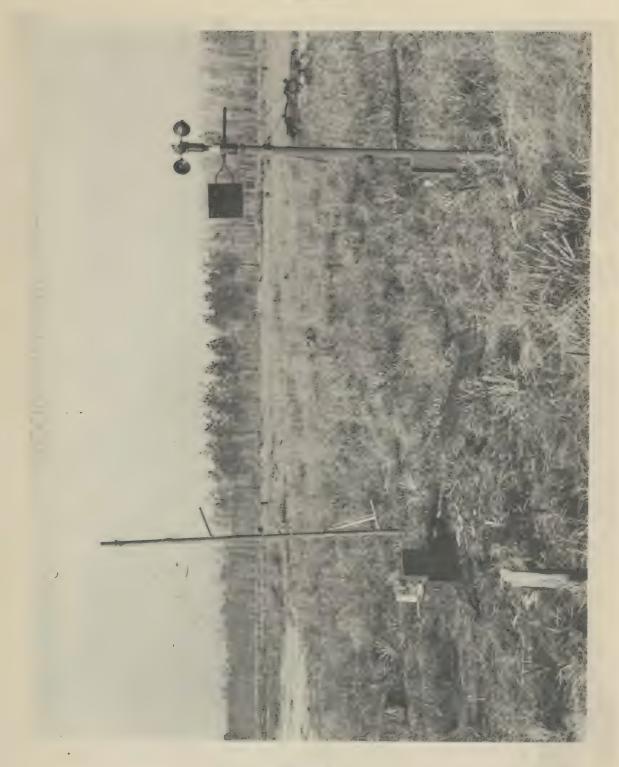


- 37 - RESTRICTED



- 38 -

RESTRICTED



INCL. 6

# Photo No. 5

Layout of Meteorological Station.

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INCL. 6

# Photo No. 6

Entomological and Physical Sampling Station Showing Petrie Dish, Fly Cage, Larvae Container and MgO Slide.

- 40 -RESTRICTED



INCL. 6

Photo No. 7

Sample Dish Showing Distribution of Spray Particles.

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INCL. 6

# Photo No. 8

A-20-G Spraying DDT Solution with British 500-1b. S.C.I.

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METEOROLOGICAL DATA FOR THIRD EVENT TESTS

REGIONAL CONTROL OFFICE 26TH WEATHER REGION

EMB/RDC/dm-Y

A.F TACTICAL CENTER

Orlando, Florida 13 January 1945

In Reply Refer to:

Subject: Meteorological Data for AAF Board Project F-3735

To: Commanding General, A.F Tactical Center, Orlando, Florida. ATTN: Lt. Forney, Sq "A", 901st AAF BU (Tactical Wing)

THRU: Director of Operations and Training.

- 1. Transmitted herewith is a complete list of meteorological data taken at the Chemical Demonstration Range, AFTAC, on 12 January 1945 in conjunction with AAF Board Project F-3735.
- 2. Below is an explanation of the symbols appearing in the tabulation of the data:

* .	-	denotes time of spray run
T <sub>2</sub>	· <b>-</b>	temperature at 2 meters (degrees centigrade)
T.3	-	temperature at .3 meters (degrees centigrade)
<sup>T</sup> 6	, <del>,</del> , , , , , , , , , , , , , , , , ,	temperature at 6 meters (degrees centigrade)
T <sub>2</sub> - T <sub>•3</sub>		temperature at 2 meters minus temperature at .3 meters (degrees centigrade)
T <sub>6</sub> - T <sub>•3</sub>	-	temperature at 6 meters minus temperature at .3 meters (degrees centigrade)
D <sub>2</sub>	<b>-</b> .	wind direction at 2 meters
v <sub>2</sub>	-	wind speed in miles per hour at 2 meters
D <sub>12</sub>	646	wind direction at 12 meters
V <sub>12</sub>	<b>86</b>	wind speed in miles per hour at 12 meters
R.H.	-	relative humidity in percent (%)
- 1 (for wind	speed)	wind speed of less than 1 mile per hour

denotes time of enross rur

Ltr, MCO, 26th Wea Reg, 13 Jan 45, to CG, AFTAC, sub: Meteorological Data for AAF Bd Proj F-3735

- 3. The temperature difference terms (T<sub>2</sub> T<sub>3</sub>, T<sub>6</sub> T<sub>3</sub>) indicates the lapse rates of temperature between the heights indicated by the subscripts. The more positive the lapse rate (as defined above) in a layer of air, the more stable the atmosphere in the layer; the more negative are lapse rate in a layer, the more unstable the atmosphere in the layer. A result of instability is turbulence, which can be likened to a boiling effect. With such a condition some of the particles of spray will be momentarily held off the ground by rising currents of air while others will be brought to the ground by rapidly descending currents of air. This is a probable explanation of "spotty" results. A result of stability is a stratification of the atmosphere in which the only movement of air is horizontal. With such a condition there is no overtuning, as with instability, only a steady descent of the particles, the rate of which will increase with increased size of the particles of spray.
- 4. The lapse rate in the layer between 2 meters and .3 meters is the common chemical warfare lapse rate, and is used to describe stability conditions in the layer most effecting the deposit of spray and smoke on the ground surface. Likewise, the wind at 2 meters is the wind which is considered to have the most important effect at the surface.
- 5. The lapse rate in the layer between 6 meters and .3 meters, and the 12 meter wind velocity are included to give an indication of conditions at the point of spray release.

/s/ Everett M. Brooks
EVERLIT M. BROOKS
Captain, Air Corps
Actg Regional Control Office

1 Incl:
 l pg Meteorological Data (Dup)

Date 27 January 1945

	notes and the administration of	THE COST OF THE COST OF THE COST			mig t at administration and a street migra				· egs. sager-religibility-s responses	-
Time	T <sub>2</sub>	T.3	T <sub>6</sub>	T <sub>2</sub> - T <sub>•3</sub>	Tg - T.3	D <sub>2</sub>	v <sub>2</sub>	D <sub>12</sub>	V <sub>12</sub>	R. H.
1400	20.9	21.9	19.8	-1.00	-2.1	ENE	10	E	10	59
1415	21.7	23.15	21.9	-1.45	-1.25	ENE	13	E	15	
1410	21.45	22.75	21.4	-1.30	-1.35	ESE	5	E	11	
1415	21.2	22.7	20.4	-1.50	-2.3	E	9	E	10	
1420	21.2	22.8	20.2	-1.60	-2.6	E	7	ENE	8	
*1423	21.0	22.0		-1.00		ESE	10	E	14	
1/24	21.0	21.9		90		E	6	E	13	
7487	21.2	22.0	21.3	80	70	E	9	E	8	
1430	22.1	23.0	20.4	90	-2.6	E	7	ENE	9	57
1435	21.35	22.85	22.1	-1.50	75	E	8	ENE	11	
1440	21.5	23.1	21.3	-1.60	-1.8	ENE	11	ENE	11	
1445	21.4	22.2	21.9	80	30	NE	4	E	9	
1450	22.0	22.9	22.1	90	80	ENE	1.	ESE	7	
1455	22.2	24.05	22.2	-1.85	-1.85	ENE	7	E	8	
1500	22.2	23.95	22.7	-1.75	-1.25	ENE	13	ENE	12	57
1503	20.8	21.55		75		E	10	E	15	
104	20.	21.3		60		E	10	ENE	12	
1505	20.65	21.2	20.8	55	40	E	6	E	10	

Date 1 March 1945

Time	T <sub>2</sub>	'r.3	T <sub>6</sub>	T2 - T.3	To -T.	3 D	V2_	D <sub>12</sub> 712	
1345	28.4	30.1	27.9	-1.7	-2.2	ME	6	H 4	
1350	27.4	29.6	27.1	-2.2	-2.5	UNII	8	MM 5	
1355	27.5	28.9	27.1	-1.4	-1.8	N	4	M1₩ 8	
1400	27.0	28.6	26.8	-1.6	-1.8.	NAME	2	W 3	57,3
*1405	29.5	31.4	28.1	-1.9	-3.3	W	2	W -1	
1406	28.6	30.6	27.1	-2.0	-3.5	IW	5	IW -1	
1407	28.5	30.6	27.3	-2.1	-3.3	n	2	N 5	
1410	28.7	30.9	28.0	-2.2	-2.9	N	-1	NW -1	
1415	28.5	30.5	38.0	-2.5	-2.5	NW	4	NW 5	
1420	27.9	29.3	27.1	-1.4	-2.2	W	2	IW 1	
1425	28.1.	29.7	27.6	-1.6	-2.1	347	2	NIW -1	
1430	29.8	32.3	29.0	-2.5	-3.3	W	2	NV -1	43,7
1435	30.5	32.5	29.4	-2.0	-3.1	IW	-1	SW 3	
1440	29.4	31.0	28.9	-1.6	-2.1	K	4 .	WSW 3	
1445	27.8	28.9	27.3	-1.1	-1.6	NW	3	MAE 6	
. 1450	27.5	28.6	27.4	-1.1	-1.2	N	3	NE 5	
<b>*1</b> 455	27.5	29.1	27.3	-1.6	-1.8	NE	6	N 5	
1456	27.2	28.4	27,.1	-1.2	-1.3	N	3	N 3	
1500	27.3	28.7	27.4	-1.5	-1.3	MAE	5	NE 2	54%
1505	27.6	28.4	27.5	8	- •9	NNE	2	ENE 3	
1510	27.7.	29.6	27.6	-1.9	-2.0	NE	4	ENE 5	
1515	28.5	30.6	27.7	-2.1	-2.9	N	4	NAW 7	
1520	28.0	29.4	27.4	-1.4	-2.0	NW	5	NNE 8	
*1523	27.9	29.3	27.3	-1.4	-2.0	NNW	4	NNW 3	
1524	28.4	29.6	27.8			1417/4	2	NNW 3	
	1345 1350 1355 1400 *1405 1406 1407 1410 1415 1420 1425 1430 1425 1430 1435 1440 1445 1450 *1455 1500 1505 1510 1515 1520 *1523	1345       28.4         1350       27.4         1355       27.5         1400       27.0         *1405       29.5         1406       28.6         1407       28.5         1410       28.7         1415       28.5         1420       27.9         1425       28.1         1430       29.8         1435       30.5         1440       29.4         1445       27.8         1450       27.5         *1455       27.5         1456       27.2         1500       27.3         1505       27.6         1510       27.7         1515       28.5         1520       28.0         *1523       27.9	1345       28.4       30.1         1350       27.4       29.6         1355       27.5       28.9         1400       27.0       28.6         *1405       29.5       31.4         1406       28.6       30.6         1407       28.5       30.6         1410       28.7       30.9         1415       28.5       30.5         1420       27.9       29.3         1425       28.1       29.7         1430       29.8       32.3         1435       30.5       32.5         1440       29.4       31.0         1445       27.8       28.9         1450       27.5       28.6         *1455       27.5       29.1         1456       27.2       28.4         1500       27.3       28.7         1505       27.6       28.4         1510       27.7       29.6         1515       28.5       30.6         1520       28.0       29.4         *1523       27.9       29.3	1345       28.4       50.1       27.9         1350       27.4       29.6       27.1         1355       27.5       28.9       27.1         1400       27.0       28.6       26.8         *1405       29.5       31.4       28.1         1406       28.6       30.6       27.1         1407       28.5       30.6       27.3         1410       28.7       30.9       28.0         1415       28.5       30.5       38.0         1420       27.9       29.3       27.1         1425       28.1       29.7       27.6         1430       29.8       32.3       29.0         1435       30.5       32.5       29.4         1440       29.4       31.0       28.9         1445       27.8       28.9       27.3         1450       27.5       28.6       27.4         *1456       27.2       28.4       27.1         1500       27.3       28.7       27.4         1505       27.6       28.4       27.5         1510       27.7       29.6       27.6         1515       28.5	1345       28.4       30.1       27.9       -1.7         1350       27.4       29.6       27.1       -2.2         1355       27.5       28.9       27.1       -1.4         1400       27.0       28.6       26.8       -1.6         *1405       29.5       31.4       28.1       -1.9         1406       28.6       30.6       27.1       -2.0         1407       28.5       30.6       27.3       -2.1         1410       28.7       30.9       28.0       -2.2         1415       28.5       30.5       38.0       -2.5         1420       27.9       29.3       27.1       -1.4         1425       28.1       29.7       27.6       -1.6         1430       29.8       32.3       29.0       -2.5         1435       30.5       32.5       29.4       -2.0         1440       29.4       31.0       28.9       -1.6         1445       27.8       28.9       27.3       -1.1         *1450       27.5       28.6       27.4       -1.1         *1455       27.5       29.1       27.3       -1.6	1345       28.4       50.1       27.9       -1.7       -2.2         1350       27.4       29.6       27.1       -2.2       -2.5         1355       27.5       28.9       27.1       -1.4       -1.8         1400       27.0       28.6       26.8       -1.6       -1.8         *1405       29.5       31.4       28.1       -1.9       -3.3         1406       28.6       30.6       27.1       -2.0       -3.5         1407       28.5       30.6       27.3       -2.1       -3.3         1410       28.7       30.9       28.0       -2.2       -2.9         1415       28.5       30.5       38.0       -2.5       -2.5         1420       27.9       29.3       27.1       -1.4       -2.2         1425       28.1       29.7       27.6       -1.6       -2.1         1430       29.8       32.3       29.0       -2.5       -3.3         1435       30.5       32.5       29.4       -2.0       -3.1         1440       29.4       31.0       28.9       -1.6       -2.1         1445       27.8       28.9       27.3 <td>1345 28.4 30.1 27.9 -1.7 -2.2 INE 1350 27.4 29.6 27.1 -2.2 -2.5 INV 1355 27.5 28.9 27.1 -1.4 -1.8 N 1400 27.0 28.6 26.8 -1.6 -1.8 NE 1405 29.5 31.4 28.1 -1.9 -3.3 W 1406 28.6 30.6 27.1 -2.0 -3.5 NW 1407 28.5 30.6 27.3 -2.1 -3.3 N 1410 28.7 30.9 28.0 -2.2 -2.9 N 1415 28.5 30.5 38.0 -2.5 -2.5 NW 1420 27.9 29.3 27.1 -1.4 -2.2 W 1425 28.1 29.7 27.6 -1.6 -2.1 W 1430 29.8 32.3 29.0 -2.5 -3.3 W 1435 30.5 32.5 29.4 -2.0 -5.1 NW 1440 29.4 31.0 28.9 -1.6 -2.1 N 1440 29.4 31.0 28.9 -1.6 -2.1 N 1445 27.8 28.9 27.3 -1.1 -1.2 N 1456 27.5 28.6 27.4 -1.1 -1.2 N 1456 27.5 28.4 27.1 -1.2 -1.5 N 1500 27.3 28.7 27.4 -1.5 -1.3 N 1500 27.3 28.7 27.4 -1.5 -1.3 N 1500 27.7 29.6 27.6 -1.9 -2.0 NE 1515 28.5 30.6 27.7 -2.1 -2.9 N 1520 28.0 29.4 27.4 -1.4 -2.0 NW *1523 27.9 29.3 27.3 -1.4 -2.0 NW *1523 27.9 29.3 27.3 -1.4 -2.0 NW *1524 28.4 29.6 27.8 -1.2 -1.8 NW</td> <td>1345</td> <td>1345 28.4 50.1 27.9 -1.7 -2.2 ME 6 N 4 1350 27.4 29.6 27.1 -2.2 -2.5 NU 8 MM 5 1355 27.5 28.9 27.1 -1.4 -1.8 N 4 MM 8 1400 27.0 28.6 26.8 -1.6 -1.8 ME 2 W 3 *1405 29.5 31.4 28.1 -1.9 -3.3 W 2 W -1 1406 28.6 30.6 27.1 -2.0 -3.5 MW 5 MM -1 1407 28.5 30.6 27.3 -2.1 -3.3 N 2 N 5 1410 28.7 30.9 28.0 -2.2 -2.9 N -1 MW -1 1415 28.5 30.5 38.0 -2.5 -2.5 MW 4 MW 5 1420 27.9 29.3 27.1 -1.4 -2.2 W 2 MM -1 1430 29.8 32.3 29.0 -2.5 -3.3 W 2 MM -1 1435 30.5 32.5 29.4 -2.0 -3.1 MM -1 SW 3 1440 29.4 31.0 28.9 -1.6 -2.1 N 2 MM -1 1445 27.8 28.9 27.3 -1.1 -1.6 MM 3 MM 6 1450 27.5 28.6 27.4 -1.1 -1.2 N 3 ME 6 1450 27.5 28.6 27.4 -1.1 -1.2 N 3 ME 6 1450 27.3 28.7 27.4 -1.5 -1.3 ME 6 M 5 1450 27.3 28.7 27.4 -1.5 -1.3 ME 5 1500 27.3 28.7 27.4 -1.5 -1.3 ME 5 1510 27.7 29.6 27.6 -1.9 -2.0 ME 4 EME 5 1515 28.5 30.6 27.7 -2.1 -2.9 N 4 MW 7 1520 28.0 29.4 27.4 -1.4 -2.0 MW 5 MM 5 1524 28.4 29.6 27.8 -1.2 -1.8 MW 3</td>	1345 28.4 30.1 27.9 -1.7 -2.2 INE 1350 27.4 29.6 27.1 -2.2 -2.5 INV 1355 27.5 28.9 27.1 -1.4 -1.8 N 1400 27.0 28.6 26.8 -1.6 -1.8 NE 1405 29.5 31.4 28.1 -1.9 -3.3 W 1406 28.6 30.6 27.1 -2.0 -3.5 NW 1407 28.5 30.6 27.3 -2.1 -3.3 N 1410 28.7 30.9 28.0 -2.2 -2.9 N 1415 28.5 30.5 38.0 -2.5 -2.5 NW 1420 27.9 29.3 27.1 -1.4 -2.2 W 1425 28.1 29.7 27.6 -1.6 -2.1 W 1430 29.8 32.3 29.0 -2.5 -3.3 W 1435 30.5 32.5 29.4 -2.0 -5.1 NW 1440 29.4 31.0 28.9 -1.6 -2.1 N 1440 29.4 31.0 28.9 -1.6 -2.1 N 1445 27.8 28.9 27.3 -1.1 -1.2 N 1456 27.5 28.6 27.4 -1.1 -1.2 N 1456 27.5 28.4 27.1 -1.2 -1.5 N 1500 27.3 28.7 27.4 -1.5 -1.3 N 1500 27.3 28.7 27.4 -1.5 -1.3 N 1500 27.7 29.6 27.6 -1.9 -2.0 NE 1515 28.5 30.6 27.7 -2.1 -2.9 N 1520 28.0 29.4 27.4 -1.4 -2.0 NW *1523 27.9 29.3 27.3 -1.4 -2.0 NW *1523 27.9 29.3 27.3 -1.4 -2.0 NW *1524 28.4 29.6 27.8 -1.2 -1.8 NW	1345	1345 28.4 50.1 27.9 -1.7 -2.2 ME 6 N 4 1350 27.4 29.6 27.1 -2.2 -2.5 NU 8 MM 5 1355 27.5 28.9 27.1 -1.4 -1.8 N 4 MM 8 1400 27.0 28.6 26.8 -1.6 -1.8 ME 2 W 3 *1405 29.5 31.4 28.1 -1.9 -3.3 W 2 W -1 1406 28.6 30.6 27.1 -2.0 -3.5 MW 5 MM -1 1407 28.5 30.6 27.3 -2.1 -3.3 N 2 N 5 1410 28.7 30.9 28.0 -2.2 -2.9 N -1 MW -1 1415 28.5 30.5 38.0 -2.5 -2.5 MW 4 MW 5 1420 27.9 29.3 27.1 -1.4 -2.2 W 2 MM -1 1430 29.8 32.3 29.0 -2.5 -3.3 W 2 MM -1 1435 30.5 32.5 29.4 -2.0 -3.1 MM -1 SW 3 1440 29.4 31.0 28.9 -1.6 -2.1 N 2 MM -1 1445 27.8 28.9 27.3 -1.1 -1.6 MM 3 MM 6 1450 27.5 28.6 27.4 -1.1 -1.2 N 3 ME 6 1450 27.5 28.6 27.4 -1.1 -1.2 N 3 ME 6 1450 27.3 28.7 27.4 -1.5 -1.3 ME 6 M 5 1450 27.3 28.7 27.4 -1.5 -1.3 ME 5 1500 27.3 28.7 27.4 -1.5 -1.3 ME 5 1510 27.7 29.6 27.6 -1.9 -2.0 ME 4 EME 5 1515 28.5 30.6 27.7 -2.1 -2.9 N 4 MW 7 1520 28.0 29.4 27.4 -1.4 -2.0 MW 5 MM 5 1524 28.4 29.6 27.8 -1.2 -1.8 MW 3

Date		(cont'd)

Dire	$\mathbb{T}_2$	Т.3	T <sub>6</sub>	T2 - T.3	T <sub>6</sub> - T <sub>.3</sub>	D <sub>2</sub>	V <sub>2</sub>	D <sub>12</sub>	V <sub>12</sub>	d.H.
1525	28.8	30.0	27.9	-1.2	-2.1	NIM	2	NIE	3	
1530	28.0	29.3	27.9	-1.3	-1.4	17	4	ME	6	48%
1535	28.0	29.3	27.8	-1.3	-1.5	line	3	NI.E	2	
1540	29.0	29.0	27.7	-1.1	-1.4	1717	3 -	MIM	4	
1545	28.0	29.3	27.7	-1.3	-1.6	MIN	4	W	3 .	
1550	28.4	30.2	27.8	-1.8	-2.4	WIW	3	WW	2	
.: 2*1552	28.2	30.0	27.8	-1.8	-2.2	MMM	2	MM	2	
1553	28.8	30.5	28.2	-1.7	-2.3	WIW	-1	Mil	2	
1554	29.1	30.7	28.3	-1.9	-2.6	WIW	-1	MA	2	

Date o .arch 1045

	Time	T2	Т.3	T <sub>6</sub>	T <sub>2</sub> - T <sub>.3</sub>	16-1.3	$\mathfrak{I}_2$	V2	D <sub>12</sub>	V <sub>12</sub>	110.26 
	1315	28.2	30.5	28.7	-2.3	-1.8	SW	3	SSED	11	
	1320	26.8	28.6	26.9	-1.8	-1.7	SSE	9	SSE	8	
	1325	28.2	30.5	28.9	-2.3	-1.6	S	7	SSW	11	
	1330	27.8	30.0	27.8	-2.2	-2.2	SW	8	SSW	11	43,
	1335	27.3	29.4	26.7	-2.1	-2.7	SW	8	S.V	10	
	1340	28.0	30.7	27.5	-2.7	-3.2	S	10	SSI	10	
1:12	1343	28.3	30.1	27.3	-1.8	-2.8	S	11	SSA	10	
	1344	28.0	30.3	27.4	-2.3	-2.9	SSW	11	SSE	12	
	1345	28.1	30.0	27.4	-1.9	-2.6	SSE	TO	SSE	16	
	1350	28.2	31.0	28.2	-2.8	-2.8	SSW	10	S	6	
	1355	28.4	31.1	27.9	-2.7	-3.2	S	10	SSE	Э	
	1400	28.4	31.2	28.4	-2.8	-2.8	SSW	10	SSW	12	44,5
	1405	28.4	30.9	28.0	-2.5	-2.9	SSW	S	SW	9	
	1410	29.2	31.6	28.6	-2.4	-3.0	S	4	SW	8	
非10	+1413	29.2	31.5	28.4	-2.3	-3.1	S	6	SE	15	
	1414	28.3	30.5	28.2	-2.2	-2.3	S	10	SSW	11	42%



Date 7 March 1945

						Date	7 1.18	rch 19	45		
	line	T2	T.3	T <sub>6</sub>	T <sub>2</sub> - T <sub>-3</sub>	T6 - T.3	D <sub>2</sub>	v <sub>2</sub>	D <sub>12</sub>	V12	k.rl.
	1425	20.1	31.7	27.8	-2.6	-3.9	WSW	7	W	8	
	1430	28.9	31.6	28.2	-2.7	-3.4	S.	3	HIN	5	41,5
	1435	29.1	31.6	28.1	-2.5	-3.5	SSW	12	SH	8	
, 8	*1440	28.6	31.2	28.4	-2.6	-2.8	SIV	10	W	12	
	1441	28.4	31.2	27.9	-2.8	-3.3	7. ZV.	9	W .	10	
	1445	30.0	32.3	28.0	-2.3	-4.3	MINV	8	SW	9	
	1450	29.1	32.1	27.9	-2.0	-4.2	7.77	8	T.V	4	
	1455	29.8	31.8	28.1	-2.0	-3.7	M	7	SW	6	,
	1500	29.0	31.7	27.8	-2.7	-3.9	WSW	6	TRP ft	13	39%
	1505	29.0	32.2	28.3	-2.2	-3.9	S	6	SW	9	
	1510	29.8	31.9	28.5	-2.1	-3.4	SSW	6	SW	5	
#9	*1511	29.8	31.6	28.5	-1.8	-3.1	SW	10	WSW	10	
	1515	29.2	31.9	28.7	-2.7	-3.2	SW	3	W	9	
	1520	29.2	32.0	28.2	-2.8	-3.8	TAT	5	MA	4	
	1525	29.2	31.8	28.3	-2.3	-3.5	MMM	5	N	5	
	1530	29.2	31.8	27.9	-2.6	-3.9	NIW	2	NE	7	35%
7/3	*1535	29.7	32.5	28.6	-2.8	<b>~3.</b> 9	MIJW	5	144	4	
	1536	29.7	32.5	28.6	-2.8	-3.9	W	-1	WITH	4	
	1540	30.0	32.0	29.2	-2.3	-3.1	SII	8	SW	3	
	1545	29.3	31.7	28.7	-2.4	-3.0	WSW	5	1/1/4	7	
	1550	30.0	31.8	28.8	-1.8	-3.0	WSW	7	W	5	
	1555	30.0	32.1	28.8	-2.1	-3.3	SSW	8	W	11	
#4	*1600 .	29.8	31.9	28.5	-2.1	-3,4	W	8	WSW	8	36%
	1601	23.8	31.9	28.5	-2.1	-3.4	WIW	4	SW	3	
	1602	20.8	31.9	28.5	-2.1	-3.4	SM	3	SW	5	

DENSITY DATA ON TESTS IN THIRD EVENT

1 1 1 1 .. ..

THIRD EVENT - NO 1

Test No. - 1. Tank Usel - British S.C.I. (Smoke Curtain Installation) 500 lb. tank. Altitude - 300 feet. Date - 12 January 1945.

Time of Flight - 1550 hours.
Mixture - 5% (w/v) DDT in No. 2 diesel fuel oil with du Pont oil red dye added.
Quantity in Tank - 30 American gallons. Airspeed - 200 MPH Airplane - A-20G.

Line Data - Lines A and B 200 yards apart. (See drawing).
Odd numbered stations - 50 yards apart (See drawing).
Wind Velocity - 5 MPH at 2 meters.

		00 00 00										
	Particle Data	Percent of total by wt. in drops b										
		No.: Med. : per: Diam. : sq.: by wt.	1110 : \1117.00									
ineB	Flies	Cages Kill	12	70	100	100	72	37	23	17	7	0
Ţ	-	100% down (min)		16	16	প্ত	99	19	Ħ	18	7017	500
	÷	50% down: (min):		7	9	n	€	00	_	6	500	240t
	Mosquito	Larvae 1 (%) Kill		32	95	90	100	85	8	0	90	0
		No.			1	100	100	33				
	ta	: Per cent of total spre: by wt. in drops below 100: 200: 400: 800				20						
	Particle Data 4/	wt. in				0	0.9	0				
n e A	Part	ت د د ۰۰۰۰	<b>N</b>		0.3	0	0	ó				
1.3		per: Diam.				434			~			
	3/:-	100% :No.: M down :per: D (min):sq.: b		23 0.7	9						0 /0172	
	Flies n dishes	50% : 100% : down (min): (min):									240 John	
	: Mosquito: ir	Larvae 1/50 (%) Kill: do (n				95					20 27	
03	, a	+40 p		-1	3	20	2	6	H	13	15	17

Time in minutes for 50% and 100% knockdown of houseflies placed in exposed petri dishes. No knockdown in untreated checks. Per cent mortality in 24 hours of Anopheles quadrimaculatus larvae.

Per cent mortality in 24 hours of houseflies in cages. No mortality in untreated checks. नालालन

Counts made on magnesium oxide coated slides.

S

C) THIRD EVENT - NO.

Date - 1 March 1945.

K H

flight

BH

30 yds

1

ે	Tank used - British S. C. I. (Smoke Curtain Installation) 500 lb. tank.	300 ft.	200 NPH	A-26B.	ght - 1552	Mixture - $5\%$ (w/v) DDT in No. 2 diesel fuel oil with du Pont oil red dye added.	Tank - 30 American gallons.	Lines A and B 200 yards apart. (See drawing).	Odd numbered stations - 50 yards apart (See drawing).
Test No 2.	Tank used - British S.	Altitude - 300 ft.	Airspeed - 200 MPH	Airplane - A-26B.	Time of Flight - 1552	Mixture - 5% (w/v) DD	Quantity in Tank - 30	Line Data - Lines A au	odd number

			total spray	rops below	008:007	: mic.: mic.: mic.		007	100						
	ata		it of	b ni d	200	mic.:	100	22.3	5.4						
	Particle Data		Percer	by wt.	100	mic.:	16.0	1,26	1.04						
	Part		3d. :	iam. :	/ wt.:	_	110	220	110						
				2		00			0	_	~	,-I	0	-	_
	98 :	••	es: N	ŭ	1 : 8				0	~	_+				
M	Flic	큐	Cage	82	Kil	/2	15.1	14.	29.0	27.3	36.1				
Line	60	ne83/	100%	down	(min)		240	240	240	240	240	240	240		•
	: Flies : Flies:	in disl	50% :	down:	(min):	00			122						
	••	quito:	rael/:	Kill:	••	00	0	2	000	65	2	20	35	9	0
	۰۰,	:Mosc	:Lar	( SE )	••	00	15	0	6.8	•			4.3	~	
			spray	елом	800	mic.	,								
	ta		total	rops b	004	mic.	100		100						
	Particle Data	14/	of of	· in d	500	mic.:	24.2	001	19.0	100	100	001	100		
	Parti		Percent of total spray	by wt	100	mic.:	1					7.8			
			Med. :	: Diam : k	y wto:	(mic) :	242	176	242	154	132	176			
V			No.: A	l : Tec	3q. : k	in.:	86	2	97	13	9	5	9	-	H
Line	00	33/ :	100%	lown::F	min):	**						240	9		
	Flies	in dishes3	. E		) ::	**					7	7	7		
	E.		50%	: down	: (min.		15	73	65	79		67	77	7/4	92
		Mosquito:	rvael/	Kill (			10	0	0	8	0	20	15	70	9
00	 دب	a : Mo	t : La	i. 6		п :	7	3	10	7	6	H	13	15	17

No knockdown in untreated checks. Percent mortality in 24 hours of Anopheles quadrimaculatus larvae. No mortality in untreated checks. Percent mortality in 24 hours of houseflies in cages. No mortality in untreated checks. Time in minutes for 50% and 100% knockdown of houseflies placed in exposed Petri dishes. No knockdow Counts made on magnesium oxide coated slides. नालालन

Wind Velocity - 2 MPH.

<	- H				17
N					10
print					
m	۱ H -	g .			17
	2	2			
	A   20 mm		dded	ligh	t
		1	We a		
			red	M	
			Lio		
			Pont		
			de.		
			lvent		
			800		
			heav		
			ttis		
	tank		Barre		
	÷		13,		ng).
-	Š		6 ga		Odd numbered stations - 50 yards apart (See drawing), y - 5 MPH
	tion		oil.	ing)	See
	alla		[en]	draw	) tr
	Inst		sel f	(See	8
	tain		die	irt.	yard
	e Cur		No. A	lons.	5
	Smok		ls.	gal	ons
	i		24 ga	ricar 200	stati
	ပိ		EDT.	Ame und B	red
945.	ish S	Hd	1535 (v)	- 30 8 A 8	numb 5 MPF
ch 1	Brit:	26B	tht (#	Tank	odd -
7 Max	ed 1	1 1	F14	y in	locit
Nate - 7 March 1945. Test No 3	Tank used - British S. C. I. (Smoke Curtain Installation) 500 lb. tank.	Airspeed - 200 MPH	Time of Flight - 1535  Exture - 10% (w/v) DDT. 24 gals. No. 2 diesel fuel oil. 6 gals. Barrett's heavy solvent. duPont oil red dye added.	Quantity in Tank - 30 American gallons. Line Data - Lines A and B 200 yards apart. (See drawing).	Wind Velocity - 5 MPH
Dat	Tar	Air	Til	Sue	Win

THIRD EVENT - NO. 3

Line B   Particle Data in dishes3/: in :   Files:   Particle Data	100
Data t of total spray in drops below 200: 400: 800 mic.; mic.; mic. 100 100 100 100 100 100 100 100 34.9 100 91 91 100	001
Data t of total in drops b 200 : 400 : mic.: mic.: 100 100 100 34.9	100
t of the parameters:	901
Particle Data : Percent of : by wt. in d : 100 : 200 : : mic.: mic.:	
Med. : Diam. : Diam. : (mic) : (hy wt. : (his) : 528	
B	-1
Line   B   Line   B	93.3
240 (min) (min) 179 210 210 211 199 211 119	77
Flies in dish dish dish dish (min): (min): (min): (1)	~
1 1	
inosquito: iLarvael/: i(%) Kill: i	
spray slow 800 mic.	
rticle Data  44  Fer cent of total spray by wt. in drops below 100: 200: 400: 800 mLc.: mic.: mic. 100 100 100 100 100 100 100 100 100 10	100
Data ent of ent of in dr 200 : mic.: mic.: 100 100 4.9 54.7	
Particle Data   14	
Par 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	30
E B S	_
dish dish ()	
108 108 108 108 108 108 108 108 118 118	18
Mosquito Larvael/ (%) Kill. 100 100 100 90 90 90 90 90 90 90 90 90	15
HUHOJON HONDOHAN	17

No knockdown in untreated checks. Percent mortality in 24 hours of Anopheles quadrimaculatus larvae. No mortality in untreated checks. Fercent mortality in 24 hours of houseflies in cages. No mortality in untreated checks. Time in minutes for 50% and 100% knockdown of houseflies placed in exposed Petri dishes. No knockdo Counts made on magnesium oxide coated slides. नोतालेज

THIRD EVENT - NO.

fest No. - 4
Tank used - British S. C. I. (Smoke Curtain Installation) 500 lb. tank. Altitude - 300 ft. Airspeed - 200 MPH

Airplane - A-26B

Date - 7 March 1945.

Time of Flight - 1600 Mixture - 10% (w/v) DDT. 24 gals. No. 2 diesel fuel oil. 6 gals. Barrett's heavy solvent. duPont oil red dye. Line Data - Lines A and B 200 yards apart. (See drawing). Odd numbered stations - 50 yards apart (See drawing). Quantity in Tank - 30 American gallons.

Wind Velocity - 8 MPH.

	00			00	01	••									
			spray	elow	800	mic.									100
	හ්		total	rops b	: 007	mic.:	1	9	007	9			100	99	1,8
	Particle Data		nt of	o in d	2002	mic.:	iled	2	24.5	18.3	99	001	6.8	33.9	1.8
	Partic		: Percent of total spray	by wt	1000	mic.	ide spo		3	3.4	7.1	2.2	00	1,3	9.
			epop.	Jiam. :	by wto:	: : 2/ :in.: (mic) : 1	- sli	198	198	88	154	176 .	198	220	132 .6 1.81
	00		:No.:	:per: I	: 3d. :	in:		77	R	16	26	7	8	117	3
B	:Flies:	ri :	:Cages	80	Kill	: 2/	25	58.3	9	100	001	100	001	9	100
19	88	shes3/	: 100%	: down	:(mfm):	00	31	8	24	23	19	7	2	15	#
	Flies	म क्	50%	down	(mim)		18	16	77	7	7	Ħ	Ħ	Ħ	100
	00	:Mosquito:	:Larvael/:	:(%) Kill:	••	••	07	9	85	85	2	100	001	100	001
			spray	LOW	900	nic.: mic.: mic.: mic.							92		
			total	ops be.	: 007	mic.:			100	300	001	001	25.3	001	001
	cle Data		nt of	th dr	200 :	mic.:	901	100		15.8					
	ticle	14	Per ce	by wt.	1000	mic.:						•33		1.3	2.8
	Parti		ope :	iam :	r wto:	(mic):			986	330	986	493	33	742	986
A e			No.: Me	ber: Di		in: (a	7	70		16 3					
Line	88	lishes3/:	100%: No.	down :	:(min):sq.	0.0				19		`			
	Flies	in dis	: \$05	down :	(min):	••	2	15	7	2	13	7	6	6	100
	••	Mosquito:	Larvael/:	(%) Kill:	••	***	5	96	. 001	100	100	100	100	100	100
8	+	8	د4	**	0	n	-	3	10	2	6	H	13	15	17

No knockdown in untreated checks. Percent mortality in 24 hours of Anopheles quadrimaculatus larvae. No mortality in untreated checks. Percent mortality in 24 hours of housefiles in cages. No mortality in untreated checks. Time in minutes for 50% and 100% knockdown of houseflies placed in exposed Petri dishes. Counts made on magnesium oxide coated alides. नातालन 100 mg

	βú	flight
MH -	, M	17 8 17

THIRD EVENT - NO 5

~			led.		
THIRD EVENT - NO 5	ank.		red dye a		
QH HA	500 lb. ta		Pont oil		drawing).
	allation)		1 with du	ee drawing	part (See
	rtain Inst		al fuel of	apart. (S	50 yards a
	(Smoke Cur		i. fo. 2 diese	cal Gallon	ations -
. 1945.	Tank Used - British S.C.I. (Smoke Curtain Installation) 500 lb. tank. Altitude - 150 feet.	.H.	Time of Flight" 1612 hours. Mixture - $5\%$ (w/v) DDT in No. 2 diesel fuel oil with du Pont oil red dye added.	Quantity in Tank - 30 Americal Gallons. Line Data - Lines A and B 200 yards apart. (See drawing).	Odd numbered stations - 50 yards apart (See drawing). Wind Velocity - 8 MPH at 2 meters.
Date - 12 January 1945. Test No 5.	Tank Used - British Altitude - 150 feet.	Airspeed - 200 MPH. Airplane - A-20G.	Flight - 5% (w/v	y in Tank ta – Lines	Odd n locity - 8
Date - 12 Jan Test No 5	Tank Us Altitud	Airspee Airplan	Time of Mixture	Quantit Line Da	Wind Ve

Line A				l spr	belor		.: mi			100						
Files   Files   Farticle Data   Farticle Data   Files   Files   Files   Farticle Data   Farticle Data   Files   File				tota	drops	007 :	mic		5 7.6	2 44	7.0	7.5	15			
Files   Files   Farticle Data   Farticle Data   Files   Files   Files   Farticle Data   Farticle Data   Files   File		ata		it of	in c	200	mic.	100	7.	6.1	0.08	0	2			
Files   Files   Farticle Data   Farticle Data   Files   Files   Files   Farticle Data   Farticle Data   Files   File		cle Da	147	Percei	by wt	100	mic.:	24.5	0.4	0.5	0	0	0.3			
Files   Farticle Data   Farticle Data   Files   File		Parti		94	m. :	wt.:	c.): 1									
Files   Files   Farticle Data   Flies   Flie	7			: Med	: Dia	. kq :	: (mj				86	54	43			
Files   Files   Farticle Data   Files   Filos   Filo	2	00		s:No.	:per	:8d.	:in.				4	W	100	0	0	3) 0
Files	-	F						100	8	26	100	9	901	12	67	1000
Files		••	683/:	200	OWn :	min):	**	2404	3	17	25	13	7072	2407	2407	2407
Files		Flies	dieh	7:	p: u	): (u	**									
Files     Line A   Particle Data			tr:	: 50%	: dow	: (mj	60	73	12	12	20	H	240	240	240	240
Files     Line A   Particle Data			quito	vael/	Kin			5	0	0	0	20	0	7	0	0
Files     Farticle Data			:Mos	Lar	:(%)	00		7	2	2	2	2	2	30		
Files     Farticle Data				ray	MO	00	ic.		1	8	1	. 8				
Files   Lin dishes3/:   50% : 100% : 100% : 100% : 100%   100				al sp	s bel	8 : 0	.c.: III									
Files   Lin dishes3/:   50% : 100% : 100% : 100% : 100%   100		ata		f tot	drop	07 :	.: mi									
Files   Lin dishes3/:   50% : 100% : 100% : 100% : 100%   100		cle D		ent o	t. in	300	: mic									
Files   Lin dishes3/:   50% : 100% : 100% : 100% : 100%   100   100%	A	Parti	4	Perc	by w	100	mic.	,	0	0	0.6	0				
Flies	i n				em.	wt.:	ic.):		9	69	9	12				
Filtes	I			: 1.e	r: Di	by .	: (m		2	3	7	-		_	_	_
Files in dishe down ido down ido in dishe idown ido in dishe ido in dishe idown ido in dishe idown idown ido in dishe idown ido in dishe idown idow idow idow idow idow idow idow idow				on:	: pe	: 39	:in	2	8	3 12	72			70	70.	ofo
1. 107 (min) 109. 119. 119. 119. 119. 119. 119.		68	shes3	:100%	:down	:(min):	**	77	w	3	CA	-	40	え	77	77
00 00 00 00 00		F11	in di	80	JOWN.			107	19	18	18	7	4	7017	2404	2404
1 : (%) Ki 1 : (%) Ki 2 : (%) Ki 3 : (%) Ki 1 : (%) Ki 1 : (%) Ki 2 : (%) Ki 1 : (%) Ki 2 : (%) Ki 2 : (%) Ki 2 : (%) Ki 3 : (%) Ki 4 : (%) Ki 1 : (%) Ki 2 : (%) Ki 3 : (%) Ki 4 : (%) Ki 5 : (%) Ki 6 : (%) Ki 7 : (%) Ki 8 : (%) Ki 9 : (%) Ki 1 : (%		••		40	0.0		00									
THE TOUR TO HER TO			osdni	arvae	%) Ki			8	15	700	25	100	907	0	0	N
	-		1	pul '	-		-									

No knockdown in untreated checks. Percent mortality in 24 hours of Anopheles quadrimaculatus larvae. Percent mortality in 24 hours of houseflies in cages. No mortality in untreated checks. Time in minutes for 50% and 100% knockdown of houseflies placed in exposed petri dishes. Counts made on magnesium oxide coated slides. नावालन

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A ON - MINDRICA CICTUM

Wind Velocity - 4 MPH.

	** **	••									
	: Percent of total spray : by wt. in drops below : 100 : 200 : 400 : 800	mic.: mic.	100	100	100			100			100
Data	in dro	mic.:	30.7	19.8	36.5	200	100	25.8			1.9
article Da	Percent by wt.	mic. :	1.5	87.	3.0	10.9.	6.8	1.3			1.9
	Med. : Diam. : by wt.:		220	286	220	110		220			242
	.No		270	105	67	72	15	16	-	~	00
Flies:	. Cafes: N . Kill :s	: 2/ :1	100	87.0					16.3	43.8	
es shes3/:	50%: 100%: down: (mim): (nim):		12	2	34	55	240	85	223	240	77
Flies in dishe	50% down (min)		7	15	77	36	88	36	78		647
1	Larvael/: (%) Kill:	••	100	100	001	100	100	100	100	9	85
	spray slow 800	mic.	100								
	cotal s	mic.:	30.5	100	100	100	100	100	100		
ata	: Percent of total spray : by wt. in drops below t. 100 : 200 : 400 : 800	mic.:	8	76. 80	1,32.9	17.2	54.3	55.9	14.7	100	
e A A	Perce by wt	mic.:	C.	.003	.29	3.5	2.4	7.7	4.4	18.5	
L i n Part	Med. Diam by w	(mic	047						198	132	
	No.:	in.:	96	117	. 86	7	5	22	2	16	rt
Flies in dishes3/	: 100%:No.: :down :per:: :(min):8q.:		15	7	18	35	747	97	240	120	126
F1	down (min)		10	6	00	82	23	33	25	68	82
: :Mosquito:	.(%) Kill:	00	100	100	100	10	06 .		0		
(7 4) d	4 4 0	H		3	20	7	6	H	5	7,	7

No knockdown in untreated checks. Percent mortality in 24 hours of Anopheles quadrimaculatus larvae. No mortality in untreated checks. Percent mortality in 24 hours of housefiles in cages. No mortality in untreated checks. Time in minutes for 50% and 100% knockdown of housefiles placed in exposed Petri dishes. No knockdow Counts made on magnesium oxide coated slides. निर्वातिन

1 1 1 1

flight A L 30yd S z 17 17 M

					Mixture - 10% (w/v) DDT in No. 2 diesel fuel oil with du Pont oil red dye added.
					dye
cank					red
Lb. 1					Oil
500		,			Pont
n)					du
Latio					with
Bta					Oil
A S					nel
Part Used - British S.G.I. (Smoke Curtain Installation) 500 lb. tank.			f		esel 1
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Bri	20	8	8	nt	> > >
1	1-1	N	W.	75	100
TO O	20	707	0	Lr.	1
20		30	an.	000	Tre
"San	150 feet.	.Tr. sed - 200 MPH.	Airplane - A-20G.	"Time	Mistr

Date - 27 January 1945. Test Nc. - 3.

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THIERD EVENT NO.

Odd numbered stations - 50 yards apart. (See Drawing) Wind Velocity - 10 MPH at 2 meters.

ine Data - Lines A and B - 200 yards apart. wentity in Tank - 30 American gallons.

(See Drawing)

pray low : 800 : mic	39.5
al spris	1000 10
of tot n drop 200 :	32.7 388.1 588.1
ercent y wt. i	-64 12 3.5 11.4
Le Data  Med.:Percent of total spray Diam:by wt. in drops below by wt:lOO : 200 : 400 : 87 mic : mic : mic : mic : mic	650 325 174 152 130
Particle Data  4/ No.: Ked.:P per: Diam:b sq.: by wt: in.: mic.::	550 550
1 100 00 00 00 00 00	<i>い</i> か 4 H
Line B Flies in dishes 3/ 50% :100% down :down (min) :(min)	00025.1111
Flies Flies So% :: down :: (min) :(	123 44 7 621
n n n n n n n n n n n n n n n n n n n	
Flies2/ in Cages (%)	888849400
:Mosquito :Larvael/ (%)	3500050
Lar	
spray elow 800 mic	001111
rotal rops b: 400	32.9
ticle Data  4/  Percent of total spray by wt. in drops below 100 : 200 : 400 : 800 mic : mic : mic : mic	37.3
in e A Particle Data 4/ d. : Percent am. : by wt. : wt.: 100 : 2	17.7.7 1.7.3 8.8 8.8
Line Parti Med.: Diam.: by wt.: (mic):	434 217 152 217 152
No.	82222140mm
hes3/ 100% down (min)	111384372
Flies in dishes2/ 50% :100% down :down (min) (min)	no8833111
Mosquito: Larvael/: (%)	000 25.50 00 00 00 00 00 00 00 00 00 00 00 00 0
Bondado	462594344

No knock-down in untreated checks. # mortality in 24 hours of Anopheles quadrimaculatus larvae. No mortality in untreated checks. ## mortality in 24 hours of houseflies in cages. No mortality in untreated checks. निलालिक

Time in minutes for 50% and 100% knock-down of houseflies in exposed petri dishes. No kn Measurements by Bureau of Entomology & Plant Quarantine on magnesium oxide coated slides.

B A 1 1 1 1 20 Ids.	total spray rops below 400 : 800 mic.: mic.	
	Line B   Flies   Flies   Farticle Data	5
Date - 7 Mar 45.  Test No 8  Test No. Repeat - 200 MFH  Airplane - A-26 B  Time of Flight - 1440  Mixture -10% (w/v) DDT. 24 gals No. 2 Diesel Fuel Oil. 6 gals Barrett's Heavy Solvent. Du Pont's oil red dye added. Wixture -10% (w/v) DDT. 24 gals No. 2 Diesel Fuel Oil. 6 gals Barrett's Heavy Solvent. W  Wixture -10% (w/v) DDT. 24 gals No. 2 Diesel Fuel Oil. 6 gals Barrett's Heavy Solvent. W  Wixture -10% (w/v) DDT. 24 gals No. 2 Diesel Fuel Oil. 6 gals Barrett's Heavy Solvent. W  Wixture -10% (w/v) DDT. 24 gals No. 2 Diesel Fuel Oil. 6 gals Barrett's Heavy Solvent. W  Wixture -10% (w/v) DDT. 24 gals No. 2 Diesel Fuel Oil. 6 gals Barrett's Heavy Solvent. W  Wixture -10% (w/v) DDT. 24 gals No. 2 Diesel Fuel Oil. 6 gals Barrett's Heavy Solvent. W  Wixture -10% (w/v) DDT. 24 gals No. 2 Diesel Fuel Oil. 6 gals Barrett's Heavy Solvent. W  Wixture -10% (w/v) DDT. 24 gals No. 2 Diesel Fuel Oil. 6 gals Barrett's Heavy Solvent. W  Wixture -10% (w/v) DDT. 24 gals No. 2 Diesel Fuel Oil. 6 gals Barrett's Heavy Solvent. W  Wixture -10% (w/v) DDT. 24 gals No. 2 Diesel Fuel Oil. 6 gals Barrett's Heavy Solvent. W  Wixture -10% (w/v) DT. 24 gals No. 2 Diesel Fuel Oil. 6 gals Barrett's Heavy Solvent. W  Wixture -10% (w/v) DT. 24 gals No. 2 Diesel Fuel Oil. 6 gals Barrett's Heavy Solvent. W  Wixture -10% (w/v) DT. 24 gals No. 2 Diesel Fuel Oil. 6 gals Barrett's Heavy Solvent. W  Wixture -10% (w/v) DT. 24 gals No. 2 Diesel Fuel Oil. 6 gals Barrett's Heavy Solvent. W  Wixture -10% (w/v) DT. 24 gals No. 2 Diesel Fuel Oil. 6 gals Barrett's Heavy Solvent. W  Wixture -10% (w/v) DT. 25 gals No. 2 Diesel Fuel Oil. 6 gals Barrett's Heavy Solvent. W  Wixture -10% (w/v) DT. 25 gals No. 2 Diesel Fuel Oil. 6 gals Barrett's Heavy Solvent. W  Wixture -10% (w/v) DT. 25 gals No. 2 Diesel Fuel Oil. 6 gals Barrett's Heavy Solvent. W  Wixture -10% (w/v) DT. 25 gals No. 2 Diesel Fuel Oil. 6 gals Barrett's Heavy	S:   Flies   Flies     Flies	70 200+ 0

Percent mortality in 24 hours of Anotheles quadrimaculatus larvae. No mortality in untreated checks.

Percent mortality in 24 hours of nouseflies in cages. No mortality in untreated checks.

Time in minutes for 50% and 100% knockdown of houseflies placed in exposed Petri dishes. No knockdown in untreated checks.

Counts made on magnesium oxide coated slides.

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م		Bar	
99		ល្ម	(3)
8		gal	Tank - 30 American gallons. Lines A and B 200 yards apart. (See drawing). Odd numbered stations - 50 yards apart (See drawing).
2		9	dre
ior		Ę,	ing
Lat		덛	lrar (S
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h 1	26 26 26 30 40 40 40 40 40 40 40 40 40 40 40 40 40	# % .	String String
Date - 7 March 1945. Test No 9 Tank used - British S. C. I. (Smoke Curtain Installation) 500 lb. tank.	Altitude - 150 ft. Airspeed - 200 MPH Airplane - A-26B.	lime of Flight - 1511 Wixture - 10% (w/v) DDT. 24 gals. No. 2 diesel fuel oil. 6 gals. Barrett's heavy solvent. DuPont oil red dye added	quantity in Tank - 30 American gallons. Line Data - Lines A and B 200 yards apart. (See drawing). Odd numbered stations - 50 yards apart (See di
7 N	e d e	国一	ta
No	truc	ure	Da Da
ate	irs	Ext	dne
PI Fe Fe	4 4	F-1 255 (	<i>5</i> H

	Percent of total spray : by wt. in drops below : 100 : 200 : 400 : 800 : mic.: mic.: mic.: mic.								100	
	total lrops 400		100		100	200	100	100		100
Data	in of 200	100		100		20.7	12.5	38.6		
						e,		2.9		
	Med. Diam. by wt. (mdc)					330	308	154		
	per sag.	7	H	r-I	Н	n	2	N	Н	Н
Line B.: Flies	Kill Kill	76.3	31.8	47.8	51.5	100	96.8	61.4	83.3	92.3
Line Flies n dishes3/	50% :100% :Cages:No.: 1 down :down : % :per: 1 (min) :(min):Kill :sq.: 1 :2/ :in.: (	240	240	240	240	19	33	121	39	20
1						27	22	12	25	12
Mosquito	Larvael/	2.6	20	0	15	0	55	35	22	3
	Per cent of total spray by wt. in drops below 100: 200: 400: 800 mic.: mic.: mic.: mic.								001	
	tota rops 1 400 mic.	100				100	100	100	99	100
ata	in d 200 :	13.3	901	100	100	8.3	34.2	18.9	3.1	28.5
Particle Data	Per ce by wt. 100: mic.:	6,	17.5	1.0	7.4	2.5	7.7	1.3	400	
Pa	Med. Diam by.wt. (mic)	198	154	132	21	220	264	286	374	220
A	100%:No.: lown :per: min) :sq.	2	භ	H	N	16	29	29	13	19
Flies :	down:	240	77	100	78	2	8	8	27	177
f. F.	down (min)		37	74	75	17	77	16	34	8
iosquito:	arvael/ (%) Kill:	45	8	65	8	55	100	95	65	8
(2 + 0)	₽ 4 0 BI	Н	3	2	7	6	H	5	15	17

No knockdown in untreated checks. Percent mortality in 24 hours of Anopheles quadrimaculatus larvae. No mortality in untreated checks. Percent mortality in 24 hours of houseflies in cages. No mortality in untreated checks. Time in minutes for 50% and 100% knockdown of houseflies placed in exposed Petri dishes. No knockdown Counts made on magnesium oxide coated slides. नावानम

Wind Velocity - 10 MPH.

THIRD EVENT - NO. 10   THIRD EVENT - NO. 10		1	1	1	11	i	1						
	Z	M H	v.					0 1	Or	1.4			
tain Installation) 500 lb. tank.  Fuel oil with Du Pont oil red dye  rt. (See drawing).  yards apart (See drawing).  Lole Data  Lole	0. 10		added.	Line B	Flies :Flies: in dishes3/: in :		55	240+ 50	45.5	28.6	6,3	000	
tain Installation)  Fuel oil with Du Fort. (See drawing).  Tards apart (See dispersion).  For cent of total so y wt. in drops below: 200: 400: 8 ulc.: mic.: mic.: mic.: n	THIRD EVENT - N	500 lb. tank.	ont oil red dye awing).		: Mosquito:		: 1 95	: 3 45					1
Smoke Curt 2 Diesel 1 3 gallons. yards apaulons - 50 n	,	(Smoke Curtain Installation)	Time of Flight - 1405 Mixture - 5% (w/v) DDT in No. 2 Diesel Puel oil with Du Pont oil Quantity in Tank - 30 imerican gallons.  Line Data - Lines A and B 200 yards apart. (See drawing).  Odd numbered stations - 50 yards apart (See drawing).		Particle Data	Med. Diam by wt. (mic)							9
h S. C. I. (Smoke DDT in No. 2 Die 30 imerican gall A and B 200 yards mbered stations — MPH  Line A and B 200 yards mbered stations — MPH  Line A and B 200 yards is line A is and B 200 yards is line A is a sequence of the		i i	in No. merica B 200 d stati	ne A	3/:	n per n) sq.	0+ 1	0.0 €	4	v + 0	1 +0	0 0	- 1
te - 1 Mar 45.  st No 10  trk used - British S. C.  titude - 20 ft.  rspeed - 200 Mr.  rplane - A-26B  me of Flight - 1405  xture - 5% (w/v) DDT in  antity in Tank - 30 Amer  ne Data - Lines A and B  odd numbered s  nd Velocity - 2 MPH  in String in dishes2/:  likervael/: 50% dishes2/:		45. 0 British S. 0 ft. 00 MPH	$\begin{array}{c} \text{mt} - 1405 \\ \text{(w/v)} & \text{DDT} \\ \text{Tank} - 30 \\ \text{Lines} & \text{A and} \\ \text{Odd numbere} \\ \text{V} - 2 \text{ MPH} \end{array}$	17.	in dish	50% down (min)							100
Date - 1 Mar 45.  Test No 10  Tank used - British S. C. I. (Smoke Curriculate - 200 ft.  Airspeed - 200 MrH  Airplane - A-26B  Time of Flight - 1405  Mixture - 5% (w/v) DDT in No. 2 Diesel Cuantity in Tank - 30 American gallons.  Line Data - Lines A and B 200 yards apa Cuantity in Tank - 30 American gallons.  Line Data - Lines A and B 200 yards apa Cuantity in Tank - 30 American gallons.  In Data - Lines A and B 200 yards apa Cuantity in Tank - 30 American gallons.  S:  In Flice  S:  Flice  In A Bart  Subar  Flice  In A Bart  Subar  Sub		ate - 1 Mar est No 1 ank used - lititude - 5 irspeed - 2	ime of File ixture - 5% wantity in ine Data -		Moscuito	Larvael/	65	202					4

No knockdown in untreated checks. Percent mortality in 24 hours of Anopheles quadrimaculatus larvae. No mortality in untreated checks. Percent mortality in 24 hours of houseflies in cages. No mortality in untreated checks. Time in minutes for 50% and 100% knockdown of houseflies placed in exposed Petri dishes. No knockdown Counts made on magnesium oxide coated slides. नालान्त्र

≪ ₽			17
N .			တ
ДН <del>-</del>	and		17
\	30 yds	,	
		×	

THIRD EVENT - NO. 11

Date - 1 March 1945.

Time of Flight - 1455

Eixture - 5% (w/v) DDT in No. 2 diesel fuel oil with duPont oil red dye added. Quantity in Tank - 30 American gallons.

Line Data - Lines A and B 200 yards apart. (See drawing).

Odd numbered stations - 50 yards apart (See drawing). Test No. - 11 Tank used - British S. G. I. (Smoke Curtain Installation) 500 lb. tank. Altitude - 50 ft. Airspeed - 200 MPH Airplane - A-26B

Wind Velocity - 6 MPH.

			spray	wole	800	mic.									
			total	rops be	: 007	mic.:									
	ata		nt of	in d	300	mic.:	100	100	100	100					
	Particle Data		:Perce	: by wt	:100:	:mic.:	20.7	58.6	56.9	47.9					
	Part		Led.	Diam.	by wt.	(mic) :mic.: mic.: mic.	132	88	110	110					
	 0		S:No:	:per:	: 30.	: ut:			77		C			Н	
Line B	:Flies:	/: in	:Cage	DQ	LLiX:(	311				39.5					
i.	Flies	lishes3	:100	: down	:(min):	: 2/ : in : (I	28	110	240	240	240	240	240	240	240
	00	: in c	: 50%	: down	: (min)		21	69		8					
		squito	:Larvael/:	CLIN (S			100	100	97	96	9	15	25	10	10
••	00					••									
			:Fer cent of total spray	below	\$000	: mic.									
			f tota	drops	007:	: mic.	100								
	e Data		cent o	t. in	: 200	: mic.	48.6	100		100					
	Particle Data	14	. Fer	.by w	::100	:mic.	5.6			15,2	100				
				: Diam	: by wt	(mic)	198	132		132	99				
Line A	40	3/:	.00,6:No.	n :per	.ps:(u	:in.	223		-1	18	7	2	3	prof	
T	Flies	in dishes3,	. 10	mop: 1	(mim): (	••	6	20	240	240	240	240	240	240	240
	00		1: 50%	: down	: (min	60	5	77							
		osquito	arvael/	Kill (8			95	85	96	65	25	15	15		15
···	٠.	a : h.	t : It	): 1	0	es £1!	1	00	50	7	0	H	13	15	17

1/ Fercent mortality in 24 hours of <u>Anopheles guadrimaculatus</u> larvae. No mortality in untreated checks.
2/ Percent mortality in 24 hours of houseflies in cages. No mortality in untreated checks.
3/ Time in minutes for 50% and 100% knockdown of houseflies placed in exposed Petri dishes. No knockdown 1/4/ Counts made on magnesium oxide coated slides.

No knockdown in untreated checks.

-30 yds.		
B A A 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		No.: Med. :Percent of total spray per: Diam. :by wt. in drops below sq.: by wt. in drops below in: (mic) :mic.: mic.: mic.: mic. :mic. : mic. : mic. : mic. :mic. : mic. :mic.
ont oil 1		#Files:  Cages:  Kill:  13.5  13.5  2.2  2.2  2.2  100  100
Solvent, duP	Line	Files in dishes3/ 50% :100% down :down (min) :(min) : 240 240 240 240 240 240 240 240 240 240
THIRD EVENT - NO. 12.  in Installation) 500 lb. tank.  diesel fuel oil. 6 gals. Barrett's Heavy Solvent. duPont oil red dye added.  int. (See drawing).  yards apart (See drawing).	***	1. (%) Kill: : : (%) Kill: : : :
THIRD ain Installation) 500 lb. diesel fuel oil. 6 gals. urt. (See drawing).		cole Data  4/  Per cent or total spray by wt. in drops below 100: 200: 400: 800 mic.: mic.: mic.: mic. 6.9 46.1 100 1.1 100 0.3 20.3 100 0.64, 22.6 100 1.4 20.5 100 0.64, 22.6 100 0.64, 22.7 100 0.69 52.7 100
e Curtain Instal No. 2 diesel fu allons. rds apart. (See B - 50 yards apa		Parti Med. : Diam : Diam : 176 : 176   176   242   220   220
ch 1945.  Exitish S.C.I. (Smoke Curt. Orft.  Of MrH  -263  ht 1343.  % (w/v) DDT. 24 gals No. 2  Innk - 30 American gallons Lines A and B 200 yards ap  Odd mumbered stations - 50  y - 11 MPH.	Line A	dishes3/ dishes3/ idown (min) (min) 58 445 447 449 199
Date - 3 March 1945.  Test No 12  Task used - British S.C.I. (Smoke Curtain Installation) 500 lb. tank. Altitude - 50 ft.  Airspeed - 20c MFH  Wind Velocity - 11 MFH.	···	t: Mosquito: in t: Larvael/: 500, in (.k.) Kill: down in : (.k.) K

No knockdown in untreated checks. Servent mortality in 24 hours of Anopheles quadrimaculatus larvae. No mortality in untreated checks. Percent mortality in 24 hours of housefiles in cages. No mortality in untreated checks. Time in minutes for 50% and 100% knockdown of housefiles placed in exposed Petri dishes. No knockdown Counts made on magnesium oxide coated slides. नालां जो

THIRD EVENT - No. 13.	154         7.3         100         50         28         4.2         81.4         18         132         25.8         100           264         1.5         3.1         100         90         21         26         58.8         41         286         2.1         13.4         100           220         1.96         9.3         100         17         25         100         41         220         3.8         40.2         100           220         1.96         9.3         100         12         24         100         40         220         46         43         100           220         1.84         29.3         100         10         12         24         100         40         220         46         43         100           220         1.84         29         100         10         10         20         14         132         13         20.7         100           286         3.5         100         7         10         100         81         25.2         83.5         100
Date - 3 March 1945  Test No 13  Tank used - British S. C. I. (Smoke Curtain Install: Altitude - 50 ft.  Altitude - 50 ft.  Altitude - 50 ft.  Altropeed - 200 MPH  Altropeed - A-26B  Time of Flight - 1413  Mixture - 10% DDT. 24 gals. No. 2 Diesel Fuel Cil.  Quantity in Tank - 30 American gallons.  Line Data - Lines A and B 200 yards apart. (See driving Velocity - 100 and Data and B 200 yards apart.)  S:  Line A Particle Data  a: Mosquito: in dishes2;  t: Flies  a: Mosquito: in dishes2;  t: Larvael.: 50%: 100%:No.: Med. : Per cent of the Collection of Collecti	15 2404 0 15 2404 2 15 2404 13 66 27 64 13 95 25 31 10 100 12 16 47 100 8 12 53 7 100 8 11 82

Percent mortality in 24 hours of Anopheles quadrimaculatus larvae. No mortality in untreated checks.

Percent mortality in 24 hours of housefiles in cages. No mortality in untreated checks.

Time in minutes for 50% and 100% knockdown of housefiles placed in exposed Petri dishes. No knockdown in untreated checks.

Counts made on magnesium oxide coated slides. नोलोने

#### THIRD EVENT - NO 1

Date - 12 January 1945.

Test No. - 1.

Tank Used - British S.C.I. (Smoke Curtain Installation) 500 lb. tank.

Altitude - 300 feet.

Airspeed - 200 MPH.

Airplane - A-20G.

Time of Flight - 1550 hours.

Object - To determine density of DDT contamination, using du Pont oil red dye #5076 as a tracer.

Spray Mixture - Dye = 483.7 mg/100 ml.

DDT = 5% (26 lbs. corrected to 25 lbs.)
Made to 55 gallons with #2 diesel Fuel Oil.

Dye to DDT ratio - 1 = 11.27.

Line Data - Lines A and B - 200 yards apart. (See drawing).

Odd numbered stations - 50 yards apart. (See drawing).

Wind velocity - 5 MPH at 2 meters.

	Line A	Line B			
Station	Mg. DDT Per Sq. Meter.	Station	Mg DDT Per Square Meter		
1	1.1	1	3.5		
3	4.2	3	8.5		
5	3.5	5	9.3		
7	3.0	7	4.8		
9	1.5	9	3.3		
11	2.0	11	3.4		
13	Lost	13	0		
15	0.4	15	0		
17	0	17	0		

### THIRD EVENT - NO 2.

Date - 1 March 1945.

Test No. - 2

Ten Deed - Erit . . . C.T. (Smoke Curtain Installation) 500 lb. tank.

Altitude - 300 feet.

Airspeed - 200 MPH.

Airplane - A-26B

Time of Flight -

ubject - To determine density of DDT containmention, using in Sont off rest dye #5076 as a tracer.

Spray Mixture - Dye - 4 Pounds.

DDT = 52 Pounds.

Mixed to 120 gallons of No. 2 diesel fuel oil.

Dye to DDT ratio -

Line Data - Lines A and B - 200 yards apart. (See drawing).

Odd numbered stations - 50 yards apart. (See drawing).

Wind Velocity - 2 MPH.

	Line A	. <u>L</u>	ine B
31 at Lun	Co. St. Fert. og., Metar.	Station H	o DDT Fee square Motion
1 -	11.1	1	•7
3	1.5	3	1.0
5	1.3	5	• 5
7	.8 .5	9	.2
ıí	1.2	11.	2
13	, o 2n	13.	•4
17		15 17	.2

### THIRD EVENT - NO 3

Date - 7 March 1945.

Test No. - 3

Pank Uset - British J.J.I. Lomoke Curtain Installation; 500 lb. Lon

Altitude - 300 feet.

Airspeed - 200 MPH.

Airplane - A-26B

Time of Flight - 1535

dys #5076 as a tracer.

Spray Mixture - Dye = 6 Pounds.

DDT = 150 pounds.

Line A

Mixed to 144 gals. #2 diesel fuel oil and 36 gals Sarrett's heavy solvent.

Line B

Dye to DDT ratio -

Line Dina - Lines A and - 200 pards apart, (See draing)

Odd numbered stations - 50 yards apart. (See drawing).

Wind Velocity - 5 MPH.

Station	is Miles	, Deter. Station	Nº DOT IN STAIR	lirly:
WA 1	10.3	WB 1	.7	

WA 1	10.3	WB 1	.7
3	3	3	.9
5	2.1	5	2.1
7	4	7	4
9	1.9	9	5.6
ii	2.3	11	9.9
13	26.1	13	6.6
15	24.9	. 15	4.7
17	83.8	17	1.2

### THIRD EVENT - NO 4

Date - 7 March 1945.

Test No. - 4

Tank Used - British S.C.I. (Smoke Curtain Installation) 500 lb. tank.

Altitude - 300 feet.

Airspeed - 200 MPH.

Airplane - A-26B

Time of Flight - 1600

Object - To determine density of DDT contamination, using du Pont oil red dye #5076 as a tracer.

Spray Mixture - Dye = 6 Pounds.

DDT = 150 pounds. Mixed to 144 gals. No. 2 diesel fuel oil and 26 gals. Barrett's heavy solvent.

Dye to DDT ratio -

Line Data - Lines A and B - 200 yards apart. (See drawing).

Odd numbered stations - 50 yards apart. (See drawing).

Wind Velocity - 8 MPH.

	Line A		Line B
Station	Mg. DDT Per Sq. Meter.	Station	Mg DDT Per Square Meter
1	1.4	1	4.4
3	5.5 7.7	3	4.
7	10.6	7	5.5
9	12.2 21.4	9	6.2
13	19.5	13	23.5
15 17	56.9 32.9	15 17	38.1 16.

#### THIRD EVENT - NO 5

Date - 12 January 1945.

Test No. - 5

Tank Used - British S.C.I. (Smoke Curtain Installation) 500 lb. tank.

Altitude - 150 feet.

Airspeed - 200 MPH.

Airplane - A-20G.

Time of Flight - 1612 hours.

Object - To determine density of DDT contamination, using du Pont oil red dye #5076 as a tracer.

Spray Mixture - Dye = 561.5 mg/100 ml.

DDT = 5% (26 lbs. corrected to 25 lbs.)

Made to 55 gallons with #2 diesel fuel oil.

Dye to DDT ratio - 1:9.62.

Line Data - Lines A and B - 200 yards apart. (See drawing).

Odd numbered stations - 50 yards apart (See drawing).

Line B

Wind velocity - 8 MPH at 2 meters.

Line A.

	Dillo no	TITHE	<u>.</u>
Station	Mg DDT Per Square Meter	Station	Mg DDT Per Square Meter
1 3	0.3	1	4.8 5.5
5	4.0	5 7	5.7 6.2
9	8.3	9	11.6
13	0	13	4.7
17	Ö	17	0

#### RESTRICTE!

## THIRD DVENT - NO O

Date - 1 March 1945.

Test No. - 6

Tank Used - British S.C.I. (Smoke Curtain Installation) (20 1b. tank.

Altitude - 150 feet.

Airspeed - 200 LPH.

Airplane - A-26B

Time of Flight - 1523.

Object - To determine density of DDT contamination, unumer du Font oil red dye #5076 as a tracer.

Spray Mixture - Dye - 4 pounds.

Line 4

DDT = 52 pounds.

Mixed to 120 gals. No. 2 Diesel fuel oil.

Dye to DDT ratio -

Line Dats - Lines A and B - 200 yards apart (Too drawing).

Odd numbered stations - 50 yards at at (See drawing).

Wind Velocity - 4 MPH.

	* · · · · · · · · · · · · · · · · · · ·	ETTIE	
Sartaca	Wg. DDT Fer Sq. Heter	Station	Un Die Ger Square Meter
1 7 7 1	31.7 56.9 9.6 8.8	170000011255	41.1 13.1 3.7 0.4 1.1

# TEST NOTED

#### THIRD TABLE - No. 7

Date - I'l January L.

7000 500 - 7

Man Was - British S.C.I. (Smoke Curtain Installation) 500 lb. tank.

150 Feet.

Alienus - 200 LPH.

Arplano - 1-3001

Time = (41.4)1 - - - (05.4)

dye #5076 as a tracer.

r Mixture - Dye = 645 mg/100 ml.

DDT = 10% (25 lbs.)

Made to 30 gallons with #2 diesel fuel oil

.c DDT ratio - 1 = 15.5

Data - Lines A and B - 200 tomo uport (one drive)

# RESULTS IN ME PER SQUARE METER

Line A

Line B

# THIRD EVENT - NO 8

Date - 7 March 1945.

Test No. - 8

Tank Used - British S.C.I. (Smoke Curtain Installation) 500 lb. tank.

Altitude - 150 feet.

Airspeed - 200 MPH.

Airplane - A-26B

Time of Flight - 1440

Object - To determine density of DDT contamination, using du Pont oil red dye #5076 as a tracer.

Spray Mixture - Dye = 6 pounds.

DDT = 150 pounds. Mixed to 144 gals. No. 2 diesel fuel oil, and 36 gals. Barrett's heavy solvent.

Dye to DDT ratio -

Line Data - Lines A and B - 200 yards apart. (See drawing).

Odd numbered stations - 50 yards apart. (See drawing).

Wind Velocity - 10 MPH.

Line A		Line B		
Station	Mg. DDT Per Sq. Meter.	Station	Mg DDT Per Square Meter	
1	1.9	1	0.5	
3	2.3	3	0.7	
5	0.5	5	0.5	
7	0.7	7	0.9	
9	1.6	9	0.2	
11	3.3	11	0.7	
13	1.2	13	1.2	
15	1.6	15	1.6	
17	6.8	17	2.1	

#### THIRD EVENT - NO 9

Date - 7 March 1945.

Test No. - 9

Tank Used - British S.C.I. (Smoke Curtain Installation) 500 lb. tank.

Altitude - 150 feet.

Airspeed - 200 MPH.

Airplane - A-26B

Time of Flight - 1511

Object - To determine density of DDT contamination, using du Pont oil red dye #5076 as a tracer.

Spray Mixture - Dye = 6 Pounds.

DDT = 150 pounds. Mixed to 144 gals. No. 2 diesel fuel

oil, and 36 gals. Barrett's heavy solvent.

Dye to DDT ratio -

Line Data - Lines A and B - 200 yards apart. (See drawing).

Odd numbered stations - 50 yards apart. (See drawing).

Wind Velocity - 10 MPH.

	Line A		ine B
Station	Mg.DDT Per Sq. Meter	Station	Mg DDT Per Square Heter
1	4.0	1	1.2
3	2.3	3	1.2
5 7	1.4 0.9	. 7	1.9
9	3.0	9	0.7
11	7.0	11	1.6
13 15	5.6 6.1	13	0.5 2.6
17	4.9	17	0.7

#### THIRD EVENT - NO 10

Date - 1 March 1945.

Test No. - 10

Tank Used - British S.C.I. (Smoke Curtain Installation) 500 lb. tank.

Altitude - 50 feet.

Airspeed - 200 MPH.

Airplane - A-26B

Time of Flight - 1405.

Object - To determine density of DDT contamination, sing du Pont oil red dye #5076 as a tracer.

Spray Mixture - Dye = 4 pounds.
DDT = 52 pounds.

Mixed to 120 gals. #2 diesel fuel oil.

Dye to DDT ratio -

Line Data - Lines A and B - 200 yards apart. (See drawing).

Odd numbered stations - 50 yards apart. (See drawing).

Wind Velocity - 2 MPH.

	Line A	•	Line B
Station	Mg. DDT Per Sq.	Meter. Station	Mg DDT Per Square Meter
1	1.0	. 1	1.0
3 .	0.8	3	1.1
5	0.8	5	. 0
7	0.5	7	0.2
9	0.4	9	0.2
11	0.2	11	0.3
13	0	13	. 0.3
15	. 0	. 15	0.3
17	0	17	0.2

#### THIRD EVENT - NO 11

Date - 1 March 1945.

Test No. - 11.

Tank Used - British S.C.I. (Smoke Curtain Installation) 500 lb. tank.

Altitude - 50 feet.

Airspeed - 200 MPH.

Airplane - A-26B

Time of Flight - 1455

Object - To determine density of DDT contamination, using du Pont oil red dye #5076 as a tracer.

Spray Mixture - Dye = 4 pounds.

DDT = 52 pounds. Mixed to 120 gals. #2 diesel fuel oil

Dye to DDT ratio -

Line Data - Lines A and B - 200 yards apart. (See drawing).

Odd numbered stations - 50 yards apart. (See drawing).

Wind Velocity - 6 MPH.

Line A		Line B	
Station	Mg. DDT Per Sq. Meter	Station	Mg DDT Per Square Meter
1	21.3	1 .	3.5
3	5. - 0.9	3 5	1.1
7	1.0	7	0.4
9	0.5 0.3	9	0.5 0.3
13	1.3	13	0.4
15	0.5	15	0.3
17	U	17	0.3

#### THIRD EVENT - NO 12.

Date - 3 March 1945.

Test No. - 12

Tank Used - British S.C.I. (Smoke Curtain Installation) 500 lb. tank.

Altitude - 50 feet.

Airspeed - 200 MPH.

Airplane - A-26B

Time of Flight - 1455.

Object - To determine density of DDT contamination, using du Pont oil red dye #5076 as a tracer.

Spray Mixture - Dye = 6 pounds.

DDT = 150 pounds. Mixed to 144 gals. #2 diesel fuel oil, and 36 gals. Barrett's heavy solvent.

Dye to DDT ratio -

Line Data - Lines A and B - 200 yards apart. (See drawing).

Odd numbered stations - 50 yards apart. (See drawing).

Wind Velocity - 11 MPH:

	Line A	<u>Line B</u>		
Station	Mg. DDT Per Sq. Meter	Station	Mg DDT Per Square Meter	
1	3•5	1	1.6	
3	2.1	3	1.9	
5	0.2	5	1.2	
7	2.1	7	1.4	
9	1.4	9	1.4	
13	2.1	11	1.9	
15	3.3 3.5	13 15	5.5 11.1	
	1.6	17	37.8	

#### THIRD EVENT - No 13.

Date - 3 March 1945.

Test No. - 13.

Tank Used - British S.C.I. (Smoke Curtain Installation) 500 lb. tank.

Altitude - 50 feet.

Airspeed - 200 MPH.

Airplane - A-26B

Time of Flight - 1413.

Object - To determine density of DDT contamination, using du Pont oil red dye #5076 as a tracer.

Spray Mixture - Dye = 6 pounds.

DDT = 150 pounds. Mixed to 144 gals. #2 diesel fuel oil, and 36 gals. Barrett's heavy solvent.

Dye to DDT ratio -

Line Data - Lines A and B - 200 yards apart. (See drawing).

Odd numbered stations - 50 yards apart. (See drawing).

Wind Velocity - 6 MPH.

Line A		Line B	
Station	Mg. DDT Per Sq. Meter	Station	Mg DDT Per Square Meter
1	3.5	1	2.3
3 5	0 2.8	3	3.0 3.5
7	3.7	7	5.2
9	0.7	9	4.2 16.2
13	13.9	13	17.9
15 17	31. 76.	15 17	21.4 61.4



# THE ARMY AIR FORCES BOARD Orlando, Florida

26 April 1945

# PROJECT DISTRIBUTION LIST

# ARMY AIR FORCES BOARD PROJECT NO. 3735BH725 DISSEMINATION OF DDT FROM STANDARD BRITISH EQUIPMENT

	QUANTITY
AAF Board Control Office	12
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Director ATSC Area-B	6
RAF	20
Hq., AAF Library	2
AAF Board Liaison Officers (4)	5
AAF Board Liaison Officer ETO	8
Air Surgeon, Hqs., AAFTAC	2
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